Incumbency, turnout, and impact of legislature size on government spending : evidence from Italian municipalities

Incumbency, Turnout, and Impact of Legislature Size on Government Spending: Evidence from Italian Municipalities[1]

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[1] The first chapter of my dissertation titled "*The Impact of Incumbency on Turnout. Evidence from Italian Municipalities*" is a joint work with Professor Maria De Paola (Department of Economics, University of Calabria). It has also appeared as IZA Working Paper no. 7612 and it has been published on Electoral Studies Journal, Vol. 44: 98-108 in 2016. The second chapter titled "*Incumbency Advantage at Municipal Elections in Italy: A Quasi-Experimental Approach"*also appeared as a Birkbeck Working Paper no. 1408. I declare that the second and third chapters have not been coauthored and have been written by myself.

To my parents…

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Aknowledgements

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Abstract

My thesis focuses on some of the determinants of electoral participation (input side of democratic legitimacy) and on the effect of legislature size on the quality of government (output side of democratic legitimacy). In chapter 1 I analyze how having an incumbent among candidates affects electoral turnout, by using a data set providing information on the results of Italian municipal elections over the period 1993-2011. Endogeneity issues are handled through an instrumental variable approach using the mayor term-limit as an instrument for the presence of the incumbent mayor among candidates. I find that the impact of incumbency is heterogeneous across geographical areas. I speculate that the north-south divergence is related to differences in social capital and in clientelistic relationships established by incumbent politicians.

In chapter 2, I examine the personal incumbency effect at a local level in Italy over the period 1993-2011, by applying a non-parametric Sharp Regression Discontinuity Design that compares candidates who barely win an election to those who barely lose, exploiting the fact that incumbency status changes discontinuously at the threshold of margin of victory of zero. I find that incumbents are more likely to win the competition compared to their challengers at the Italian municipal elections. Also, the effect of interest seems to be larger in magnitude for municipalities located in the North of Italy compared to southern municipalities.

Finally, in chapter 3 I study the effect of council size on municipal expenditures by using a rich data set providing information on Italian municipal budgets over the period 2001-2007. By implementing a Sharp Regression Discontinuity Design, I find a negative relationship between local government size, as measured by total expenditures per capita, and the council size. Similar results are found when I consider expenditures that are more directly under the control of bureaucrats, such as current expenditures per capita. Finally, I test the "law of 1/n" on pork barrel policies, finding again a negative effect of council size on capital expenditures per capita.

Keywords: Incumbency; Political Competition; Electoral Turnout; Social Capital; Government Size; Legislature Size; Law of 1/n; Instrumental Variable; Natural Experiment; Sharp RDD.

JEL classification: D72, D78; J71; J16 ; J45

Introduction

Modern democracies are characterized by different degrees of citizen integration into politics[2] and various levels of political efficiency[3]. In the political economy literature (see for instance, Rothstein and Teorell, 2008) it has been shown that both of them are important prerequisites of democratic legitimacy, i.e. the accepted right to exercise and use power. On the one hand, electoral participation has important effects on the functioning of democracy and on policies that will be implemented. Decades of research clearly show that low participation also means distorted participation: when participation is low, young, poor and low-educated people are usually less inclined to go to the polls and cast their votes, especially in a context of serious economic crises (Matsusaka and Palda, 1999; Lassen, 2005; Larcinese, 2007). If they do not vote, what legitimacy do politicians have to represent their interests? Politics will increasingly have an incentive to not consider abstainers and focus only on electors who not only vote with a higher probability, but also know how to be well represented through lobbies, family connections, or more directly through the money that politicians use to create consensus during the electoral campaign. On the other hand, political efficiency and in turn, the quality of government is understood as regarding to how public institutions such as the public administration and judiciary implement public policies. Many studies have shown that the quality of government factors, such as control of corruption, the rule of law, and administrative competence, have a strong positive impact on most measures of

[2] In Italy political participation tends to be higher for elections at national level (80.5 percent) compared to elections at regional (63.5 percent), European (66.5 percent) and municipal (71 percent) level respectively. Similar results hold true for other democracies like Germany and France.
[3] Political efficiency is defined as the capacity of government to effectively formulate and implement sound policies (Kauffman et al., 2004).

human well-being (e.g., infant mortality, life expectancy, and child poverty) and democratic legitimacy (see among others Sung, 2004; Rothstein and Teorell, 2008; Rothstein, 2011).

In order to understand how some factors relate to output as well as input elements affecting democratic legitimacy, the focus of this thesis is on Italian local governments. Local government is usually an important link between citizens and the political-administrative system. In fact, it acts as the vehicle of local democracy, providing services responsive to local needs and conditions, and constitute the local branch of the nation-state administrative apparatus, executing state policies in key-policy areas, where bureaucratic efficiency plays an important role (Pierre, 1990; Sharpe, 1970). Under the labels of "participatory democracy" or "deliberative democracy", as in the Italian case, the main idea behind local government is the integration of citizens into the political decision making process and their 'education' towards responsible and active members of the community. Conversely, from a "functionalist" side, local government is, at first sight, a services provider with efficient service delivery being the main objective (Kersting andVetter, 2003).

The aim of my thesis is to highlight some of the determinants of electoral participation (input side of democratic legitimacy) as well as the effect of legislature size on the quality of government, and in turn on its efficiency (output side of democratic legitimacy). In particular, I firstly study the effect of incumbency on electoral turnout at the municipal level in Italy. The incumbency status could affect electoral participation through a number of channels which would lead to different results. Having an incumbent among candidates increases the availability of

information with ambiguous effects on turnout. Furthermore, voters' choices to go to the polls and in turn, to cast their vote are influenced by their expectations about candidates' behavior, including the incumbent, that depends for instance, on how well the incumbent's past announcements reflect current tastes of the electorate. Secondly, I examine the candidate incumbency advantage in winning the electoral race, considering Italian municipal elections, since no author so far has analyzed whether incumbent mayors do or do not have an advantage in winning the competition compared to non-incumbent candidates for Italian elections. Thirdly, I analyze the effect of legislature size on government size, as measured by municipal expenditures, using a rich dataset providing detailed information on Italian municipal budgets, in order to empirically test the so-called "Law of 1/n", i.e. the relationship between efficiency and legislature size.

The aim of the first chapter of my thesis is to analyze one of the potential determinants of electoral participation, the effect of the incumbency status on voter turnout, using data on candidates who run for a mayor position in Italy. The effect arising from the status of incumbent on turnout is not unambiguous and may depend on a number of factors. First, if the voters are informed about the candidates, including the incumbent, and if he/she has performed well in the past, then a positive effect on voter turnout is expected. If, however, the incumbent is responsible for mismanagement, citizens may not be encouraged to go to the polls or they might decide to punish the incumbent casting the vote for another candidate, thereby increasing participation. A second aspect that should be considered is the level of political competition during the elections. If the electoral margin between the incumbent and his/her best challenger is very large, then the voters being almost

certain of the incumbent's victory may decide not to participate actively on the Election Day. Instead, if the competition is high, citizens understand that their vote is not marginal, but on the contrary could be decisive to give the victory to one of the candidates in the list, and in turn decide to participate in elections.

Empirical works in the political economy literature studying the impact of candidates' characteristics on electoral turnout are scant, especially in Italy, although candidates' features matter in order to explain the variation in electoral participation. In fact, being informed about candidates' skills is essential in making the right decision, and voters might rely on heuristics in choosing who to vote among a long list of candidates: a candidate will be favored compared to others only if the voter feels well represented. In this regard, some of the candidates' characteristics, such as gender (McDermott, 1997), race (Sigelman and others, 1995), sexual orientation (Golebiowska, 2001; Herrick and Thomas, 1999) and employment (McDermott, 2005), have been investigated in the literature as possible determinants of voter turnout.

The first chapter of my thesis contributes to this strand of literature showing the effect of having been incumbent on electoral participation using revealed preference data: since voters must choose a candidate who is eligible to hold a particular office, qualifications and past experience are of particular relevance in terms of turnout.

This chapter tries to shed some light on the relationship between incumbency and turnout using a rich data set providing information on the results of the Italian municipal elections over the period 1993-2011. To handle problems deriving from the fact that the incumbent's decision to run for re-election is endogenous and may

be affected by unobservable and time variant variables that also affect turnout (for instance, some unobservable skills of the incumbent may affect his/her decision to run for election and voters' decision to cast their vote), an instrumental variable strategy is implemented, using as an instrument for the presence of an incumbent among candidates the mayor term-limit imposed by Italian law (the mayor term limit represents a valid instrument since it clearly affects the probability of having an incumbent among candidates, but it is unlikely to directly affect turnout).

Furthermore, municipalities located in the Center-South and in the northern part of Italy have been separately considered, since in areas endowed by low social capital (such as the South of Italy) there is both a higher probability of having corrupt incumbents, who establish clientelistic relationships and a higher tendency of free riding among citizens who avoid to protest against government malfeasance (Knack, 2002; Peiró-Palomino and Tortosa-Ausina, 2013). Instead, in areas characterized by a high level of social capital, clientelistic relationships are less frequent, which might weaken the efforts made by the incumbent to increase turnout (the expected returns of winning an election are lower as they do not include the personal gains deriving from corruption, see Escaleras et al. 2012), while citizens are more likely to punish bad performing incumbents by increasing support for challengers, leading to an increase in turnout. These two channels work in opposite directions. Depending on which one prevails, the effect of incumbency on turnout will be positive or negative (or null since the two effects can offset each other).

To better investigate this issue, I have analyzed the effect of incumbency on turnout both in relation to social capital as well as by looking separately at the subsample of Italian regions characterized by a high density of organized crime

(above the 75th percentile of the density of mafia infiltration index) and at the subsample of regions with relatively low density of organized crime (below the 25th percentile).

The second chapter of my thesis focuses on the incumbency advantage in election success (see, for example, Erikson, 1971; Payne, 1981; Alford and Hibbing, 1981; Alford and Brady, 1988; King and Gelman, 1990; Cox and Morgenstern, 1993; Ansolabehere and Snyder, 2000), as knowing whether the incumbent has an advantage in winning the competition compared to his challengers has important implications on the quality of governance. In fact, incumbents may allocate public resources to finance their electoral campaigns, or have a dominant position in a committee (such as the City Council). In addition, some resources may be used for providing special services to citizens close to next elections in order to obtain a greater number of votes (Fiorina, 1976).

The empirical literature has focused on the benefits that candidates get once they become incumbent, both at the state (Garand, 1991; King, 1990; Cox and Morgenstern, 1993) and federal level (Erikson, 1971; Alford and Hibbing, 1981; Alford and Brady, 1988; Gelman and King, 1990) in U.S. House elections, generally highlighting a personal incumbency advantage.

The second chapter of my thesis contributes to this large existing literature in two ways. First of all, the literature investigating the incumbency advantage/disadvantage for European countries is scant, and in particular, no author so far has analyzed whether incumbent mayors do or do not have an advantage in winning the competition compared to non-incumbent candidates for Italian municipal elections. In fact, decisions made at municipal level have a great impact

on citizens' daily lives, since these decisions often concern relevant services, such as the management of public utilities, the provision of public housing etc. For this reason, citizens are usually interested in the composition of the Municipal bodies and in the performance of the mayor, especially when he/she has already performed the same charge in the past. Second, in Italy the differences in the economic and social conditions of the two main geographical areas (South and North) are likely to matter when the incumbency effect is estimated. On the one hand, as the southern part of the country is poorer and endowed with a low level of social capital, the positive impact of the incumbency status on both share of votes as well as on the probability of winning the election may be related to the clientelistic relationships established by the incumbent candidates, which ensure political support in exchange of benefits (exchange votes). On the other hand, in areas characterized by general discontent such as the South of Italy, incumbents may have some difficulties in satisfying the majority of voters and as a consequence, the probability of winning the electoral competition for incumbent candidates is expected to be lower than that of incumbents holding power in the North.

In order to identify the causal effect of incumbency status on the probability of winning the electoral race, and to overcome the problem of selection bias and omitted variable bias, a regression discontinuity design (RDD) has been implemented. The focus is on very close elections which are decided by a narrow margin of victory. The bare winners and bare losers of these elections are assumed to be comparable in all their baseline characteristics. This implies that bare losers provide a valid counterfactual for bare winners with regard to subsequent electoral outcomes.

The third chapter of my thesis examines the relationship between legislature size and government size, because one of the main motivations explaining the increase in government size over the last decades, from a supply side perspective, is related to the actions played by legislators who usually internalize all the benefits related to the implementation of a particular project to the detriment of the general community since taxes are spread across citizens (the so-called "Law of 1/n" proposed by Weingast, Shepsle and Johnsen, 1981).

However, this conjecture has been criticized by Primo and Snyder (2005) who theoretically show that the positive relationship between spending and legislature size might reverse (reverse Law of 1/n) when some factors, such as the type of good being provided, the costs of raising revenues, whether the local government has to share in the project's cost with the central government, are taken into account.

For this reason, studying whether legislature size positively or negatively affects government size is an empirical question, even though in the literature mixed results are found. On the one hand, some authors (see Gilligan and Matsusaka, 2001; Bradbury and Crain, 2001; Bradbury and Stephenson, 2003; Egger and Koethenbuerger, 2010; Hirota and Yunoue, 2012) highlight a positive impact of legislature size on government spending using US data. Furthermore, the same positive effect has been found by Egger and Koethenbuerger (2010) and Hirota and Yunoue (2012) using German and Japanese data respectively. Per-Petterson-Lidbom (2012) instead finds a negative causal effect of legislature size on local government expenditures both for Finnish and Swedish municipalities.

The contribution of the third chapter to the literature that focuses on motivations explaining an increase in government size is to provide new evidence on the impact

of legislature size on government spending in Italy at local level, using a rich data set on municipal budgets over the period 2001-2007. In fact, to the best of my knowledge this is the first empirical work studying the relationship between legislature size and government spending for Italian municipalities. To recover the causal effect of interest, an exogenous variation in legislature size induced by Italian law, establishing that Council size is a deterministic step function of population size, has been used. This law introduces a discontinuity in municipal Council size around some known thresholds of a continuous variable (population size), allowing me to implement a Sharp Regression Discontinuity Design. Further, the "Law of 1/n" on pork barrel policies is tested, by using capital expenditures per capita as a proxy for the investment projects implemented at local level in Italy. Finally, expenditures that are more directly under control of bureaucrats, such as current expenditures per capita, are considered. In fact, it may happen that government programs do enter into force only because some interest groups want them and the legislature authorizes them. In other words, the government can grow not only because the increase in expenditure is required from citizens, interest groups, or by legislators, but also because they are required by bureaucrats working for the government.

CHAPTER 1

The Impact of Incumbency on Turnout. Evidence from Italian Municipalities

1.1 Introduction

While a large literature has investigated the effect of the incumbency status on the probability that an incumbent candidate wins the electoral competition, little is known on how incumbency affects turnout.

Understanding why people vote in large elections and which factors affect this decision is of great interest both for political scientists and economists. The literature typically distinguish between "instrumental voting", when people vote because they are interested in the consequences of the electoral process, and "expressive voting", when people obtain an intrinsic reward from casting a vote (see Brennan and Brooks, 2013; Hillman, 2010; Tóka, 2009). Having an incumbent among candidates at the electoral race could affect turnout through a number of channels relating to both instrumental and expressive motivations. Firstly, the incumbent candidate, due to the so-called incumbency advantage (disadvantage), can reduce (increase) the degree of political competition (the probability of being the decisive voter) and, as a consequence, voters might be less (more) inclined to participate to the polls (see for example, Hortala-Vallve and Esteve-Volart, 2011). This would be an indirect effect, since the electoral turnout is influenced through the change that the presence of an incumbent produces on electoral competition. Electoral turnout may also be influenced through more direct channels. First of all,

maintaining constant the level of political competition, elections in which one or more incumbents run for re-election are typically characterized by a higher availability of information, since citizens had the opportunity to observe, even if imperfectly, past performance of incumbent candidates (Houser et al. 2011; Grofman et al., 1995; Keele, 2007; Sobbrio and Navarra, 2010). The increase in the availability of information might lead to an increase in turnout either because information directly increases the expected utility from voting (decision- theoretic models of turnout, Matsusaka, 1995) or because informed voters are less afraid of cancelling out with their vote an informed vote with similar preferences (game theoretic models, Feddersen and Pesendorfer, 1999). However, offering more information to voters might also translate in lower political participation. Oliveros (2013) proposes a theoretical model of information acquisition and voting and shows that voters with extreme ideology collect information and vote if the information reinforces their bias, but abstain if the information goes against their bias. The empirical evidence on the relationship between information availability and turnout also leads to ambiguous results (see Hauser et. al. 2011; Larcinese, 2009; Lassen, 2005) and even information on corruption does not increase in an obvious manner political participation; instead, a number of papers find an increase in abstentions, probably because voters become disenchanted with the political system (see for example, Costas-Pérez, 2014; Chong et al., 2013; Caillier, 2010).

It should also be considered that incumbency may affect the direct utility which comes from expressing political preferences since voters may obtain higher or lower utility from voting in an election characterized by a different degree of novelty in the pool of candidates. Finally, another direct channel through which

incumbency can affect turnout is related to the fact that incumbent politicians are able to use their power and resources to obtain "exchange votes" leading, by this way, to an increase in political participation. This type of relationship based on the log-rolling usually characterizes the poorest areas of a country and could be stronger in the presence of an incumbent running for re-election. In fact, even if incumbent politicians are as likely as entrants to be corrupt, incumbents, having spent time in office, had the opportunity to divert public resources[4] and to use "red-tape procedures" and private information in order to obtain exchange votes. In other words, even if incumbents and freshmen politicians have ex-ante the same characteristics, time spent in office might have favored the occurrence of corrupt behaviors. For instance, Coviello and Gagliarducci (2010), using Italian data, show that mayors' longevity in office produces a deterioration of the procurement system, with a reduction in participation and an increase in the cost of the public work. In a similar vein, Besley and Prat (2006) find a positive correlation between political longevity and some cross-country measures of corruption.

In this paper I try to shed some light on the relationship between incumbency and turnout. I use a rich data set providing information on the results of the Italian municipal elections over the period 1993-2011. To handle problems deriving from the fact that the incumbent's decision to run for election is endogenous and may be affected by unobservable and time variant variables that also affect turnout (for instance some unobservable skills of the incumbent may affect his\her decision to run for election and voters' decision to cast their vote), I implement an instrumental

[4] Many theoretical models predict that incumbents increase their chances of reelection through pork-barrel spending (see for example, Keefer and Khemani 2009; Weingast et al., 1981; Bickers, et al., 1996). For a recent empirical analysis see Stratmann (2013).

variable strategy. I use as an instrument for the presence of an incumbent among candidates the mayor term-limit imposed by Italian law (according to this law -DL 25 March 1993, no. 81-, if the outgoing mayor has already been confirmed for two consecutive terms, he/she cannot run at the next election). Term limits create ideal conditions for instrumental variables because term limits are exogenous to all those factors that might affect both individual incumbents' decision to run for reelection and turnout. The mayor term limit I consider represents a valid instrument since it clearly affects the probability of having an incumbent among candidates, but it is unlikely to directly affect turnout. Two-Stage-Least-Square results show a negative and statistically significant effect of having an incumbent among candidates on turnout. However, when I consider separately municipalities located in the Center-South and in the northern part of Italy, the negative effect persists only for municipalities located in the North, while for the Center-South the effect is null. This heterogeneous behavior is confirmed, also when, in order to try to understand whether incumbency affects turnout through some other channels than political competition, I add a measure of political competition among my controls. Once I control for the degree of competition characterizing the electoral race, I find a negative, but not statistically significant effect for the North, whereas for elections held in the South the effect is positive and statistically significant.

I speculate that in areas endowed by low social capital (such as the South of Italy) there is both a higher probability of having corrupt incumbents, who establish clientelistic relationships[5] and a higher tendency of free riding among citizens who

[5] Areas endowed with low social capital are characterized by relationships that often involve requests for jobs and patronage and citizens living in these areas may be more inclined to cast their vote in relation to exchange agreements. This is more likely to happen in elections in which the incumbent runs for re-election since he\she had the opportunity to divert public resources to gain votes.

avoid to protest against government malfeasance (Knack, 2002; Peiró-Palomino and Tortosa-Ausina, 2013). Both these channels are likely to lead to a positive relationship between incumbency and turnout. Instead, in areas characterized by a high level of social capital, clientelistic relationships are less frequent, which might weaken the efforts made by the incumbent to increase turnout (the expected returns of winning an election are lower as they do not include the personal gains deriving from corruption, see Escaleras et al. 2012), while citizens are more likely to punish bad performing incumbents by increasing support for challengers, leading to an increase in turnout. These two channels work in opposite directions. Depending on which one prevails, the effect of incumbency on turnout will be positive or negative (or null since the two effects can offset each other).

To better investigate this issue I analyze the effect of incumbency in relationship to social capital (as measured by blood donations). I split the sample and look separately at provinces below the 25^{th} and above the 75^{th} percentile. I find that the positive relationship between turnout and incumbency holds true only in municipalities characterized by low levels of social capital.

I have further scrutinized this question by looking separately at the subsample of Italian regions characterized by a high density of organized crime (above the 75^{th} percentile) and at the subsample of regions with very low density of organized crime (below the 25^{th} percentile). Again, I find a positive impact of incumbency on turnout for regions characterized by a high density of organized crime, while the relationship is either negative or zero, according on whether I control or not for political competition, for the other regions.

The effects I find are small (based on the largest estimates, it emerges a positive impact of about 0.49 percentage points in the South), but in line with those found in the literature on turnout. In a well-known paper, Matsusaka and Palda (1999) conclude that very little of the variation in voter turnout can be explained by most of the ‘‘standard’’ independent variables (such as age, education, electoral competition), leaving much of the observed variation to unobservable factors.

I believe that understanding whether incumbency affects electoral turnout is relevant since turnout is often considered a crucial indicator of democracy (Sartori, 1987; Pzeworski et al., 2000; Clark et al., 2009). From a theoretically point of view, having an incumbent among candidates might either increase or decrease turnout and then providing empirical evidence on this relationship is particularly important. To the best of my knowledge, this is the first work focusing of this issue and the heterogeneous effects I find suggest that the channels behind it might differ according to the social and institutional environment.

My work is related to the literature investigating the determinants of turnout and more in particular to a strand of the literature analyzing the impact of candidates' characteristics on political participation. The idea at the basis of these works is that information on candidates' characteristics allows voters to make inference on candidates’ skills. For instance, McDermott (2005), by focusing on statewide elections held in California, studies the impact of the candidate occupational label on voters’ choice. She shows that candidate occupational clue helps voters to make a decision in low-information races, reducing abstention. On the same vein, Kahn (1993) shows that information on past political experience leads to an increase in

electoral participation, since voters by getting these information realize that candidates have already developed some specific abilities in the political sector.

Other similar papers have investigated how turnout is affected by the presence of female candidates on turnout (De Paola et al. 2013; Wolf 2011; McDermott, 1997) and by candidates' race (Sigelman et al., 1995, Washington, 2006). In fact, voters could obtain utility from voting for candidates of their own gender/race or they may consider gender/race as a proxy for candidates' quality and preferences. Similar channels may induce voters to change their behavior in relation to candidate sexual orientation (Golebiowska, 2001).

My work is also related to the very large literature investigating the incumbency advantage/disadvantage. In particular, De Paola et al. (2010), using the same data I consider in this paper,[6] show that the percentage of votes obtained by each candidate and the probability of being elected as a mayor at Italian municipal elections is positively affected by incumbency. An incumbency advantage emerges also for US (Butler, 2009; Ansolabehere et al. 2000), and German federal elections (Hainmueller and Kern, 2008). Conversely, Titiunik (2009), analyzing the incumbency effect for Brazilian municipal elections, finds a negative impact. Similar results are found by Linden (2004) and Uppal (2009) for Indian elections and by Miguel and Zahidi (2004) for Ghana.

Some recent works have also considered how the incumbency advantage/disadvantage changes in relationship to exogenous changes in turnout, (see Hansford and Gomez, 2010; Trounstine, 2013), showing that higher turnout lowers the vote share for the candidate of the incumbent's party. In my paper I take

[6] More precisely, they use data on Italian municipal elections for the period 1993-2006.

a different perspective and look at the effect that an exogenous change in the probability of having an incumbent among candidates produces on turnout.

On this ground I also contribute to the literature analyzing the relationship between political accountability and social capital. Ferejohn (1986), Persson and Tabellini (2000), Alesina and Tabellini (2008), Besley (2005) show that social capital can affect political outcomes through two channels. First, higher social capital might induce individuals to bear the cost of gathering and processing information about the behavior of their political representative, putting them in the condition to punish misbehavior. Second, social capital may play a role in inducing voters to refrain from rewarding corrupt or lazy politicians despite receiving some targeted or clientelistic benefits and induce them to vote according to aggregate social welfare criteria. Some evidence on these effects is provided by Nannicini et al. (2013) that, using Italian data on the Italian members of Parliament, show how the electoral punishment of political misbehavior is considerably larger in electoral districts with high social capital. In line with this finding, I show that when social capital is low, voters are also less inclined to punish incumbent politician through abstention.

The chapter is organized as follows. Section 2 is devoted to the description of the institutional framework and of my data set. In Section 3, I discuss municipal fixed effects estimates, whereas in Section 4 I present Two Stage Least Square results. Section 5 concludes.

1.2 Institutional Setting and Data

The system currently regulating municipal elections in Italy has been introduced in 1993 (DL 25 March 1993, no. 81). It has established the direct election of the mayor and the adoption of the plurality rule, with some differences according to the size of the city. For municipalities with a population of fewer than 15,000 inhabitants, elections are held with single ballot and plurality rule: the winning candidate is awarded a majority premium of at least two-thirds of the seats in the council. For cities with a population above 15,000, elections are held using a dual ballot system (where the second ballot is held only if none of the candidates obtains an absolute majority of votes in the first ballot). Only the two leading candidates at the first round compete in the second ballot and the winning candidate is awarded a majority premium of at least 60 percent of the seats in the council.

Since 1993, mayors have been subject to a two-term limit, while members of the Executive Committee and of the Municipal Council, endowed with legislative power, can be re-elected indefinitely.

Municipal elections in Italy are held every 5 years[7] and Municipal governments cannot choose the election schedule. In certain circumstances, the legislature may not survive until the end of its legislative term, e.g. because of a mayor's early resignation. In these cases, elections are held before the natural schedule, and, as a consequence all subsequent elections will be held at different times from other municipalities that have completed the foreseen legislative term.

Municipalities have a registry of eligible voters, which is revised whenever there is an election and all citizens aged 18 or above on the election date are automatically

[7] With the exception of the years between 1993 and 1999, when the electoral mandate had a duration of 4 years.

registered to vote. Voting takes place in polling stations organized by the local authorities. Elections are organized according to a traditional paper ballot system.

My empirical analysis is based on a panel data set, provided by the Italian Ministry of the Internal Affairs. In order to focus on elections regulated by the same rules, I only consider municipalities with less than 15,000 inhabitants, in which elections are held with single ballot and plurality rule.[8] I end up with a sample composed by 22,629 observations for 6,499 Italian municipalities over the period 1993-2011. For each municipal election I have information on the number of voters and the number of people eligible to vote. I measure *Voter Turnout* (%) as the ratio between the number of voters and the number of eligible voters. As shown in Table 1.1, in which some descriptive statistics are reported, Italy is characterized by a quite high electoral turnout compared to many European countries and to US: the average turnout in the period 1993-2011 has been of 79.24%, with a standard deviation of 9.2.

I also have information on the number of candidates who run for a mayor position at each election, on their gender, age, educational attainment and previous job (Anagrafe degli Amministratori Locali, Ministero dell'Interno).[9] Using this information, I build a dummy variable *Incumbent* taking the value of 1 when among the candidates running for election there is the exiting mayor and zero otherwise. From Table 1, I can notice that in 36% of elections there is, among candidates running for the mayor position, a candidate that has already performed this charge in the previous legislature.

[8] The results reported in this paper remain substantially unchanged if We include in my sample also municipalities voting under the dual ballot system (those with more than 15,000 inhabitants). Results are available upon request.

[9] It is possible to obtain detailed data at an individual level at the following website: http://amministratori.interno.it

According to the Italian law not all the incumbent mayors can run for election. Because of a term limit, mayors cannot spend more than two consecutive terms in office. Then, I define *Binding Term Limit* as a dummy variable equal to one if the term limit constraint is binding and equal to zero if the term limit is slack. In 19% of the elections, the term limit was binding and it was not possible to have the incumbent mayor among candidates.

Using the information on candidates' gender I have built a dummy variable *Female Candidate* taking the value of 1 when there is at least one female candidate running for a mayor position. The proportion of elections in which there is at least a woman participating at the electoral competition is about 20% with a standard deviation of 0.40. I also have information on candidates' education, the average *Candidates' Education* of candidates is quite high (14 years of education), highlighting how the majority of candidates has at least obtained a high-school diploma.[10] Finally, candidates are on average 48 years old.

Table 1.1: Descriptive Statistics

Variables	Mean	Std. Dev.	Min	Max	Observations
Voter Turnout (%)	79.240	9.253	0.010	92.99	22,629
Incumbent	0.360	0.480	0	1	22,629
Binding Term Limit	0.190	0.392	0	1	22,629
Candidates' Education	14.097	2.879	5	18	22,629
Candidates' Age	47.778	7.976	19	84	22,629
Female Candidate	0.204	0.403	0	1	22,629
Electoral Margin	0.204	0.220	0	0.875	22,629
Education of Population	6.940	0.841	0.442	12.56	22,629
Population Size/1,000	3,379	3.213	0.033	14,966	22,629
Employment/Population	0.240	0.136	0.006	0.846	22,629
% Elderly People	0.203	0.067	0.043	0.643	22,629
Center-South	0.367	0.482	0	1	22,629

Source: Local Administrators Data set (1985-2011), Italian Ministry of Internal Affairs; Italian Census of Population (1991- 2001).

[10] In Italy, it takes 13 years to attain a High-School Degree while 17-18 years are necessary to attain a College Degree. Moreover, the educational attainment of people with a PhD or a Master degree is always 18 years in my sample.

My data set allows me also to use some proxies of the degree of competition characterizing each electoral race. I have information on the number of votes obtained by each candidate and I create a variable *Electoral Margin* as the absolute difference between the number of votes obtained by the two leading candidates (divided by the number of eligible voters). *Electoral Margin* represents an inverse measure of expected electoral closeness and is on average equal to 0.204, with a maximum of 0.875 and a minimum of 0.[11]

To control for municipalities' demographic characteristics, I use the 1991 and 2001 Italian Census of Population. Data from the 1991 census are used for elections held in the period 1993-1996, while data from the 2001 census are used for elections held after 1996. I have information on the size of resident population, the average level of employment, the educational attainment of the population and the percentage of people aged 65 or over. As shown in Table 1, the average population size is 3,379, the average educational attainment of population, by considering only people aged 6 or above, is about 7 years. Further, the fraction of employed people in the population is 24%, the proportion of elderly people in the population is on average 20%. Roughly 37% of municipalities are located in the Center-South.

1.3 Incumbency Status and Voter Turnout: Municipal Fixed Effects Estimates

In this Section, I analyze whether having an incumbent mayor among candidates affects electoral participation. Assuming that the voter's expected utility when

[11] The value of zero characterizes few elections in which the two candidates obtained exactly the same number of votes.

voting is given by $U = pI + E - C$, where *p* is the probability of being the decisive voter, *I* are the benefits deriving from the election of the voter's favorite candidate, *E* represents the utility a voter obtains from expressing political preferences or solidarity and *C* is the costs of voting, the presence of an incumbent among candidates changes *U* through the following channels: 1) affecting *p*, due to the so-called incumbency advantage (disadvantage); 2) changing *I* through the higher availability of information on candidates' expected performance or through "exchange votes"; 3) changing *E*, since voters might experiment an increase or decrease in the direct utility they obtain from voting in an election in which candidates are freshmen or incumbents.

Since from a theoretical point of view these effects can lead either to a positive or to a negative impact of incumbency on turnout, it is important to investigate this issue empirically. At this aim, I estimate the following model by OLS with fixed effects at municipal level:

[1] $$Voter\_Turnout_{it} = \beta_0 + \beta_1 Incumbent_{it} + \beta_2 X_{it} + \beta_3 Z_{it} + \varphi_i + \mu_t + \varepsilon_{it}$$

where $Voter\_Turnout_{it}$ is a variable measuring the (%) electoral turnout (number of voters on number of eligible electors) in municipality I in election year *t*; $\text{Incumbent}_{\text{it}}$ is the main variable of interest and it takes a value equal to 1 if the mayor in the previous legislature is among candidates and zero otherwise; X_{it} is a vector of municipal characteristics at the time of elections, such as the population size, the population size squared, the average number of years of education of the inhabitants, the fraction of employed people in the population, the fraction of elderly people; Z_{it} is a vector of candidates' characteristics, such as the average age and education of candidates and a dummy variable taking the value of 1 when there

is at least a woman among candidates; Z_{it}also includes $Electoral\ Margin_{it}$ that measures the degree of political competition as the difference in votes (%) between the winner and his/her closest challenger; φ_i and μ_t are respectively a municipal and an electoral year fixed effect, whereas ε_{it} is the stochastic error term of the model. The fixed effects φ_i accounts for time-invariant characteristics of the municipality, either observable or unobservable.

In all regressions standard errors are robust to heteroskedasticity and are clustered at the municipal level to take into account the fact that the voters' behavior in the same municipality may be affected by common shocks.

In Table 1.2 I report estimates obtained when controlling for municipal fixed effects. In all specifications the dependent variable is voter turnout.

In column (1), I control only for demographic characteristics, and I find a negative and statistically significant, at 10 percent level, correlation between incumbency and turnout. In particular, having a candidate who performed the mayor charge in the previous legislature decreases the electoral participation by 0.11 percentage points. In column (2) I add candidates' characteristics as control variables. Again I find a negative and statistically significant correlation between incumbency and turnout. In order to understand what drives this negative relationship, in column (3), I include among controls my measure of electoral competition, i.e. the electoral margin. I am aware that political competition is a "bad" control since having an incumbent among candidates might affect the degree of political competition. However, including this variable can be useful to illuminate the mechanism through which incumbency affects turnout: incumbency influences both turnout and political competition, but I am interested in understanding whether incumbency has an effect on turnout through some other

channels than political competition and then controlling for political competition provides some insight into whether this is true. I find the expected results: turnout is higher in closer elections.[12] Once I control for electoral competition, the effect of Incumbent_{it} changes sign and becomes positive and statistically significant at the 1 percent level, suggesting that, keeping constant the level of electoral competition, having an incumbent among candidates induces a higher number of electors to cast their vote.

Table 1.2: Municipal fixed effects estimates. Incumbency and Voter Turnout

	(1) Voter Turnout	(2) Voter Turnout	(3) Voter Turnout
VARIABLES	Population Controls	Population and Candidates' Controls	Political Controls: Electoral Margin
Incumbent	-0.106*	-0.129**	0.187***
	(0.062)	(0.062)	(0.058)
Population Size/1,000	-1.626***	-1.657***	-1.841***
	(0.442)	(0.441)	(0.419)
Population Size^2	0.046**	0.047**	0.059***
	(0.023)	(0.023)	(0.022)
Education of Population	1.345***	1.355***	1.429***
	(0.303)	(0.302)	(0.299)
Employment/Population	-1.509	-1.479	-2.132*
	(1.274)	(1.275)	(1.233)
% Elderly People	-6.529*	-6.413*	-5.687
	(3.883)	(3.874)	(3.737)
Candidates Education		0.049***	0.030**
		(0.015)	(0.014)
Candidates' Age		0.014**	0.010**
		(0.005)	(0.005)
Female Candidates		0.097	-0.106
		(0.083)	(0.079)
Electoral Margin			-6.447***
			(0.209)
Constant	81.142***	79.790***	81.498***
	(2.407)	(2.437)	(2.433)
Observations	22,629	22,629	22,629
R-squared	0.439	0.440	0.494

Notes: The dependent variable is voter turnout (%), as measured by the number of voters on the number of individuals eligible to vote. I control for municipalities fixed effects and for electoral year dummies (not reported) in all the regressions. Standard errors (corrected for heteroskedasticity and clusterized at the municipality level) are reported in parenthesis. The symbols ***,**,* indicate that coefficients are statistically significant respectively at the 1, 5, and 10 percent level.

[12] These results are consistent with those found by Fauvelle-Aymar and Francois (2008) for French elections, by Simonovits (2012) for Hungarian elections and by De Paola and Scoppa (2011; 2013) for Italian municipal elections.

As far as my control variables (municipal and candidates' characteristics) are concerned, I find the expected results (see column 3). Voter turnout increases with the educational attainment of the population, while it decreases with population size [13] and the employment rate. Candidates' characteristics also matter. Having more educated candidates running for the mayor position positively affects turnout, suggesting that electors decide to go to the polls and to cast their vote when candidates are considered qualified on the basis of their educational attainment. Further, having elderly candidates also positively affects turnout, maybe because older candidates are perceived as more experienced. On the other hand, having at least a female among candidates produces a negative but not statistically significant impact on turnout.

OLS estimates presented in Table 1.2 might be biased due to endogeneity problems and then be the result of spurious correlation between incumbency and electoral participation: the incumbent's decision to run for election is endogenous and may be affected by unobservable and time variant variables that also affect turnout. In the next section I handle endogeneity problems by using an instrumental variable approach.

1.4 Instrumental Variable Estimates

To disentangle the causal effect of incumbency on electoral participation I use a Two-Stage-Least-Square (TSLS) approach, specifying the model presented in the previous section as follows:

[1] $$Voter\_Turnout_{it} = \beta_0 + \beta_1 Incumbent_{it} + \beta_2 X_{it} + \beta_3 Z_{it} + \mu_t + \varepsilon_{it}$$

[2] $$Incumbent_{it} = \alpha_0 + \alpha_1 Binding\_Term\_Limit_{it} + \alpha_2 X_{it} + \alpha_3 Z_{it} + \mu_t + v_{it}$$

[13] This finding is in line with the idea that the single rational elector is not able to modify the electoral outcome alone and in turn, when population size increases, the expected utility deriving from casting the vote decreases, leading to voters' absenteeism (see for example Mueller, 2003).

The coefficient β_1 in equation [1] measures the effect of my variable of interest on electoral turnout. From equations [1] and [2] I can notice that $\text{Incumbent}_{\text{it}}$ might be positively or negatively correlated with the error term ε_{it}, leading to biased estimates in the municipal fixed effects model discussed in the previous section. For instance, some unobservable abilities of the incumbent embedded in the error term of equation [1], such as communicative skills or charisma, may affect both his/her decision to run for election and voters' decision to cast their vote.

To solve this endogeneity problem, I estimate a TSLS model using $Binding\_Term\_Limit_{\text{it}}$ (a dummy variable taking the value of 1 if the outgoing mayor has already been confirmed for two consecutive terms and zero otherwise) as an instrument for $Incumbent_{\text{it}}$. The Italian electoral law establishes a two mandate term limit and, as a consequence, while incumbent mayors at their first mandate can decide to run or not for re-election (about 36% of mayors at their first mandate decide to run for re-election), those at their second mandate are excluded from competition. Then, it is possible to have among candidates the outgoing mayor only if he/she has not already spent two consecutive terms in office; in this case the term limit constraint is not binding and my instrument takes the value of 0, otherwise the term limit is binding and the instrument takes the value of 1. This implies that $\text{Binding\_Term\_Limit}_{\text{it}}$ is strongly correlated to $Incumbent_{\text{it}}$. On the other hand, $\text{Binding\_Term\_Limit}_{\text{it}}$ is exogenous because I do not expect it to affect, through other channels, turnout (i.e. it is not included in equation [1]) and, as a consequence, it is not correlated to the error term ε_{it}.

TSLS estimates are shown in Table 3. Panel B highlights the results from the First Stage regressions. The instrumental variable strongly determines $\text{Incumbent}_{\text{it}}$.

Table 1.3: TSLS Estimates. Incumbency Effect on Voter Turnout

	(1) Voter Turnout	(2) Voter Turnout	(3) Voter Turnout
	Population Controls	Population and Candidates's Controls	Political Controls: Electoral Margin
VARIABLES		Panel A TSLS	
Incumbent	-0.309***	-0.331***	0.029
	(0.111)	(0.113)	(0.108)
Population Size/1,000	-1.641***	-1.671***	-1.853***
	(0.341)	(0.341)	(0.324)
Population Size^2	0.047**	0.048**	0.061***
	(0.019)	(0.019)	(0.018)
Education of Population	1.467***	1.477***	1.559***
	(0.166)	(0.166)	(0.157)
Employment/Population	-1.435	-1.405	-2.049**
	(0.894)	(0.893)	(0.849)
% Elderly People	-6.189***	-6.075***	-5.364**
	(2.296)	(2.295)	(2.181)
Candidates' Education		0.051***	0.031**
		(0.013)	(0.013)
Candidates' Age		0.016***	0.012***
		(0.005)	(0.004)
Female Candidates		0.087	-0.112
		(0.082)	(0.078)
Electoral Margin			-6.406***
			(0.156)
Observations	22,629	22,629	22,629
		Panel B First Stage	
VARIABLES	Incumbent	Incumbent	Incumbent
Binding Term Limit	-0.735***	-0.727***	-0.719***
	(0.007)	(0.007)	(0.007)
First Stage *F-Stat*	9,353.02	9,215.96	9,055.40
(p-value)	(0.000)	(0.000)	(0.000)
Adj- R squared	0.54	0.55	0.55

Notes: The dependent variable is voter turnout (%), as measured by the number of voters on the number of individuals eligible to vote. I control for municipalities fixed effects and for electoral year dummies (not reported) in all the regressions. Standard errors (corrected for heteroskedasticity and clusterized at the municipality level) are reported in parenthesis. The symbols ***,**,* indicate that coefficients are statistically significant respectively at the 1, 5, and 10 percent level.

Panel A of Table 1.3 reports the TSLS estimates for the same specifications reported in Table 2. In column (1) and (2), in which I control for municipal and candidates' characteristics respectively, I find that incumbency produces a negative and highly statistically significant effect on voter turnout. In particular, having a candidate who held a mayor position in the previous legislature decreases electoral participation by 0.31 percentage points (see column (1)). Similar results are found in column (2) where I add candidates' characteristics.

As in OLS estimates, once I control for political competition (see columns (3)), the effect of incumbency on turnout becomes positive. Nevertheless, in TSLS estimates the effect is no longer statistically significant suggesting that once I handle endogeneity issues and control for the indirect effect that incumbency produces on turnout through the change in electoral competition, no other additional effect is left.

It is worthwhile to notice that the estimated effect is a Local Average Treatment Effect (LATE) (i identify the average treatment effect for that part of the population that changes its participation behavior with the change in the instrument). Since my instrument only affects the subgroup of mayors that are elected in their second period, I measure a local average treatment effect among elections in which the term limit was binding. My instrument affects about 20% of elections in my sample. Then, the local average treatment effect is computed within a not too small group of municipalities. This group is instead peculiar. However, it is not clear how this might affect the direction of the LATE compared to the ATE, since in the municipalities affected by the instrument, voters might be either more or less inclined to vote. In my data the turnout rate is slightly smaller (78%) in those municipalities where the instrument is binding - no incumbent because of a binding term limit- compared to those municipalities where the instrument is not binding (80%) – no incumbent but no binding term limit), which might point to a local average treatment effect that is smaller than the ATE.

The channels through which incumbency may affect turnout may work dissimilarly in different parts of Italy. I are indeed considering a country that is very heterogeneous in terms of economic and social conditions, with the northern part being richer and endowed with higher social capital compared to the South. To

investigate whether the relationship between incumbency and turnout is heterogeneous in the two parts of the country I have run separate regressions[14] for municipalities located in the Center-South and in the North of Italy.

Table 1.4: TSLS Estimates. Incumbency Effect on Voter Turnout: North vs South

	(1) Voter Turnout Center-South	(2) Voter Turnout North	(3) Voter Turnout Full Sample	(4) Voter Turnout Center-South	(5) Voter Turnout North	(6) Voter Turnout Full Sample
VARIABLES			Panel A TSLS			
Incumbent	-0.009	-0.462***	-0.462***	0.354*	-0.073	-0.073
	(0.196)	(0.120)	(0.130)	(0.184)	(0.125)	(0.130)
Incumbent*South			0.454**			0.424**
			(0.217)			(0.215)
Population/1,000	1.105*	-1.575***	-1.607***	0.913	-1.888***	-1.969***
	(0.624)	(0.362)	(0.392)	(0.586)	(0.379)	(0.394)
Population Size^2	-0.065*	0.028	0.029	-0.052*	0.047**	0.051**
	(0.034)	(0.020)	(0.022)	(0.032)	(0.021)	(0.022)
Education of Population	-0.465*	0.076	0.158	-0.339	0.095	-0.056
	(0.269)	(0.194)	(0.207)	(0.255)	(0.221)	(0.204)
Employment/Population	6.152***	-1.153	-1.122	5.331***	-1.521*	-1.563
	(1.782)	(0.897)	(0.974)	(1.675)	(0.912)	(0.954)
% Elderly People	-46.348***	-5.598**	-5.707**	-47.816***	-2.879	-3.511
	(4.333)	(2.419)	(2.626)	(4.072)	(2.498)	(2.502)
Candidates' Education	0.096***	0.030**	0.031**	0.059**	0.020	0.019
	(0.025)	(0.014)	(0.015)	(0.024)	(0.014)	(0.015)
Candidates's Age	0.020**	0.008	0.008	0.009	0.009*	0.008*
	(0.008)	(0.005)	(0.005)	(0.008)	(0.005)	(0.005)
Female Candidates	0.019	0.204**	0.204**	-0.095	-0.043	-0.043
	(0.159)	(0.083)	(0.090)	(0.150)	(0.085)	(0.089)
Electoral Margin				-8.317***	-5.744***	-5.744***
				(0.297)	(0.170)	(0.178)
Observations						
	8,316	14,309	22,629	8,316	14,309	22,629
			Panel B First Stage			
VARIABLES	Incumbent	Incumbent	Incumbent	Incumbent	Incumbent	Incumbent
Binding Term Limit	-0.703***	-0.739***	-0.739***	-0.700***	-0.730***	-0.730***
	(0.013)	(0.009)	(0.009)	(0.013)	(0.009)	(0.009)
Binding Terrm			0.036**			0.029**
Limit*South			(0.015)			(0.015)
First Stage *F-Stat*	3,070.27	6,115.24	4,230.70	3,037.11	5,981.47	4,183.54
(p-value)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Adj- R squared	0.51	0.57	0.55	0.51	0.57	0.55

Notes: The dependent variable is voter turnout (%), as measured by the number of voters on the number of individuals eligible to vote. I control for municipalities fixed effects and for electoral year dummies (not reported) in all the regressions. Standard errors (corrected for heteroskedasticity and clusterized at the municipality level) are reported in parenthesis. The symbols ***,**,* indicate that coefficients are statistically significant respectively at the 1, 5, and 10 percent level.

[14] The regressions are the same as that reported in column (4) of Table 3, in which We consider the full set of controls.

Results are reported in Table 1.4. As shown in columns (1) and (2), in which I do not control for electoral competition, it emerges a negative and statistically significant effect, at the 1 percent level, for the North (column 2), while the effect is null for the Center-South (column 1). In column (3) to investigate whether the North-South differences are statistically significant, I have estimated my model using the whole sample and adding interaction terms between my explanatory variables and the dummy *South*. The interaction term *Incumbent***South* is positive and statistically significant: while in the North having an incumbent among politicians reduces turnout (by 0.462 percentage points) in the Center-South the effect is zero.[15]

In columns (4) and (5) I again run separate regressions for municipalities located in the Center-South and in the North of Italy, but I add among controls my measure of political competition (electoral closeness). Once I control for electoral competition, I find a positive effect of incumbency on turnout for southern municipalities (incumbency increases turnout by 0.424 percentage points) and a negative effect (even if statistically not significant) for northern municipalities. As shown in column (6) the difference between the estimated treatment effect is statistically significant.

A positive impact of incumbency on turnout could be related to the improvement in the information available to voters on candidates' expected performance.

[15] We are interacting the variable of main interest with a dummy taking the value of one for municipalities located in the South. Since people can move across municipalities living in the South is not exogenous and it might be affected by unobservable variables that also affect turnout. In other words, my moderating variable might not be exogenous. However We are including fixed effects at municipal level. Unless the decision to live in the South is affected by time variant variables that also affect turnout, my results should not particularly suffer from the potential endogeneity of my moderator term.

However, I would expect this channel to work also in the northern part of the country. Then, I speculate that the heterogenous effect of incumbency in the two geographical regions is related to difference in social capital and in clientelistic relationship established by incumbent politicians. In areas endowed by low social capital there is both a higher probability of having corrupt incumbents, who establish clientelistic relationships and a higher tendency of free riding among citizens who avoid to protest against government malfeasance.[16] Both these channels are likely to lead to a positive relationship between incumbency and turnout. Instead, in areas characterized by a high level of social capital, clientelistic relationships are less frequent, which might weaken the efforts made by candidates to increase turnout (the expected returns of winning an election are lower as they do not include the personal gains deriving from corruption, see Escaleras et al. 2012), while citizens are more likely to punish bad performing incumbents by increasing support for challengers, leading to an increase in turnout. These two channels work in opposite directions. Depending on which one prevails, the effect of incumbency on turnout will be positive or negative (or null since the two effects can offset each other).

[16] Clientelistic relationships are more likely to emerge in the South. As argued by Putman (1993), the emergence of "exchange votes" is more likely in areas characterized by poor economic conditions and weak social capital. In these areas contracts with government officials tend to overwhelmingly involve requests for jobs and patronage. In addition, even if problems related to clientelism and corruption at local level are mitigated by the fact that citizens are able to monitor better than a distant central authority, when social capital is low, citizens tend to free ride avoiding to protest against government malfeasance and public officials can easily indulge in inefficient policies aimed at increasing electoral support (see Jimenez and Sawada, 1999; Mookherjee, 2001; Bardhan and Mookherjee, 2005). See also Del Monte, Papagni (2007) who, using data from Italian regions, show that social capital is negatively correlated to corruption.

Table 1.5: TSLS Estimates. Incumbency Effect on Voter Turnout According to the Social Capital Distribution (blood donations)

	(1) Voter Turnout $< 25^{th}$	(2) Voter Turnout $< 25^{th}$	(3) Voter Turnout $> 25^{th}$ & $<75^{th}$	(4) Voter Turnout $> 25^{th}$ & $<75^{th}$	(5) Voter Turnout $>75^{th}$	(6) Voter Turnout $>75^{th}$
VARIABLES			Panel A TSLS			
Incumbent	0.064	0.422*	-0.389**	-0.024	-0.477***	-0.108
	(0.228)	(0.219)	(0.172)	(0.163)	(0.179)	(0.174)
Political competition	NO	YES	NO	YES	NO	YES
Observations	5,772	5,772	10,954	10,954	5,903	5,903
			Panel B First Stage			
VARIABLES	Incumbent	Incumbent	Incumbent	Incumbent	Incumbent	Incumbent
Binding Term Limit	-0.713***	-0.708***	-0.718***	-0.712***	-0.756***	-0.747***
	(0.015)	(0.015)	(0.011)	(0.011)	(0.014)	(0.014)
First Stage *F-Stat*	2,222.24	2,186.49	4,223.70	4,161.54	2,764.65	2,690.49
(p-value)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Adj- R squared	0.53	0.53	0.54	0.56	0.56	0.56

Notes: The dependent variable is voter turnout (%), as measured by the number of voters on the number of individuals eligible to vote. I control for municipalities fixed effects, demographic characteristics, candidates' characteristics and electoral year dummies
(not reported) in all the regressions. Standard errors (corrected for heteroskedasticity and clusterized at the municipality level) are reported in parenthesis. The symbols ***,**,* indicate that coefficients are statistically significant respectively at the 1, 5, and 10 percent level.

The main difference in social capital endowment in Italy is between North and South. However, there are also differences within each area. I consider as a measure of social capital blood donation[17] and split the sample considering separately municipalities belonging to the first quartile (below the 25^{th} percentile), municipalities between the 25^{th} percentile and the 75^{th} percentile and municipalities above the third quartile (above the 75^{th} percentile). Results are reported in Table 1.5 (i do not report control variables to save space). In odd columns I do not control for political competition, while in even columns I add among regressors the electoral margin. As shown in columns (1) and (2), I find a zero or a positive and statistically significant effect (according on whether I control or not for political competition) of incumbency on turnout for municipalities belonging to the provinces below the

[17] The number of blood bags (each bag contains 16 ounces of blood) per million inhabitants in each province collected by AVIS.

25th percentile of the blood donation distribution. Instead, for the other municipalities the effect is negative and statistically significant when I do not control for political competition (see columns 3 and 4) and becomes not statistically significant when I add among controls the electoral margin (columns 5 and 6)[18].

I have further investigated this issue by looking separately at the subsample of Italian regions characterized by a high density of organized crime[19] (above the 75th percentile - Sicily, Calabria, Campania, Apulia and Lazio-) and at the subsample of regions with very low density of organized crime (below the 25th percentile - Marche, Valle D'Aosta, Friuli Venezia Giulia, Veneto, Trentino Alto Adige, Molise -). Again I find a positive impact of incumbency on turnout for regions characterized by a high density of organized crime, while for the other regions the relationship is either negative, when I do not control for electoral competition, or vanishes when I add among controls a measure of electoral closeness.

I take these results as suggestive of the fact that in municipalities characterized by very low levels of social capital and by high density of organized crime, incumbent politicians use their power and resources to establish clienteles and to offer benefits of different kind in exchange of electoral support. I cannot exclude other channels, such as the electors' desire to punish incumbent politicians, who may have poorly performed in low social capital areas, and to vote in favor of a new candidate. However, in this case I would also expect a smaller incumbency

[18] The same results are found when We measure social capital using the indicators based on trust (World Value Social Survey, at the regional level). Results not reported and available upon request).
[19] Data on crime, available in Italy, are often spoiled by underreporting issues. This is a serious concern for my purposes, since underreporting is typically negatively related to social capital. For this reason, I have decided to use data at regional level and to look at one extreme to regions that, according to many studies (see for example Pinotti, 2011, Daniele and Marani, 2011), are characterized by a high density of organized crime and to the other extreme to regions where organized crime is very low. The data I use are from Centro Transcrime, Catholic University, Milan (reported in http://it.wikipedia.org/wiki/Indice_di_penetrazione_mafiosa).

advantage in areas endowed with lower social capital. To get some evidence on this issue I have used my data to analyze whether the incumbency advantage is related to social capital. At this aim I have regressed the percentage of votes obtained by each candidate on whether a candidate is an incumbent (controlling for gender, age and education differences among opponents, municipal fixed effects and municipal characteristics).[20] I find that the incumbency advantage diminishes with social capital (results not reported and available upon request). This evidence, even if only suggestive (as I am not handling endogeneity problems arising in this type of estimates), supports the idea that the positive relationship between turnout and incumbency in municipalities characterized by low social capital is the result of patronage practices.

Table 1.6: TSLS Estimates. Incumbency Effect on Voter Turnout According to the Level of Organized Crime

	(1) Voter Turnout	(2) Voter Turnout	(3) Voter Turnout	(4) Voter Turnout	(5) Voter Turnout	(6) Voter Turnout
	High Density	High Density	Middle Density	Middle Density	Low Density	Low Density
VARIABLES			Panel A TSLS			
Incumbent	0.167	0.422**	-0.412***	-0.024	-0.570**	-0.066
	(0.219)	(0.208)	(0.150)	(0.145)	(0.242)	(0.225)
Political competition	NO	YES	NO	YES	NO	YES
Observations	5313	5313	13135	13135	4181	4181
			Panel B First Stage			
VARIABLES	Incumbent	Incumbent	Incumbent	Incumbent	Incumbent	Incumbent
Binding Term Limit	-0.707***	-0.705***	-0.723***	-0.715***	-0.762***	-0.752***
	(0.016)	(0.017)	(0.010)	(0.010)	(0.018)	(0.018)
First Stage *F-Stat*	1471.86	1454.09	3526.95	3481.47	1478.90	1248.89
(p-value)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Adj- R squared	0.43	0.42	0.43	0.43	0.45	0.45

Notes: The dependent variable is voter turnout (%), as measured by the number of voters on the number of individuals eligible to vote. I control for municipalities fixed effects, demographic characteristics, candidates' characteristics and electoral year dummies (not reported) in all the regressions. Standard errors (corrected for heteroskedasticity and clusterized at the municipality level) are reported in parenthesis. The symbols ***,**,* indicate that coefficients are statistically significant respectively at the 1, 5, and 10 percent level.

[20] To make easier the interpretation of results, I restrict my analysis to only those elections in which two candidates compete.

1.5 Concluding Remarks

Having an incumbent among candidates at the electoral race can affect turnout through both indirect and direct channels. The incumbent candidate, due to the incumbency advantage (disadvantage), can reduce (increase) the degree of political competition and, as a consequence, voters might be less (more) inclined to participate to the polls. In addition, since elections in which one or more incumbents run for re-election are typically characterized by a higher availability of information, electors may take advantage of this information and be inclined to express their vote (Grofman et al., 1995; Keele, 2007). Moreover, another direct channel through which incumbency can affect turnout is related to the fact that incumbent politicians are able to use their power and resources to obtain "exchange votes" leading, by this way, to an increase in political participation. This type of relationship based on the log-rolling usually characterizes the poorest areas of a country and could be stronger in the presence of an incumbent running for re-election.

In this paper, by using data on electoral results of Italian municipal elections over the period 1993-2011, I have tried to shed some light on these effects. I have firstly estimated an OLS model. Controlling for municipal fixed effect and a number of municipal and candidates' characteristics, I find that having a candidate who performed the mayor charge in the previous legislature produces a negative effect on turnout. However, once I control for the degree of political competition at the electoral race the effect of incumbency on turnout changes sign and becomes positive and statistically significant, suggesting that, keeping constant the level of

electoral competition, having an incumbent among candidates induces a higher number of electors to cast their vote.

To handle endogeneity problems arising from the fact that the incumbent decision to run for re-election may be affected by unobservable and time variant variables that also affect turnout, I have used an instrumental variable approach, instrumenting the incumbency status with the mayor term-limit, imposed by the Italian law. This instrument is strongly correlated to the presence of the incumbent mayor among candidates and should not directly affect turnout.

TSLS estimation results confirm OLS estimates and show a negative and statistically significant effect of incumbency on electoral participation. This effect is again driven by the reduction that incumbency produces on electoral competition. When I control for the "closeness" of the electoral race, I find a positive but (in contrast to OLS estimates) not statistically significant effect. There is also evidence, however, that the impact of incumbency is heterogeneous across geographical areas. When I distinguish between municipalities located in the North and in the Center-South of Italy, by controlling for the degree of political competition, I find that incumbency does not affect turnout in northern municipalities, but it produces a positive and statistically significant effect in the South. I argue that this heterogeneity is likely to be related to differences in social capital and in clientelistic relationships established by incumbent politicians. My conjecture finds support when I look separately at municipalities in the lower and upper quartile of the social capital distribution and at municipalities characterized by high or low density of organized crime.

CHAPTER 2

Incumbency Advantage at Municipal Elections in Italy: A Quasi-Experimental Approach

2.1 Introduction

A growing body of literature emphasizes the crucial role played by political institutions in the process of economic development and in particular, how the distribution of political power[21] improves economic performance and determines the allocation of resources, even in a democracy (Acemoglu, 2002). According to the fiscal common theory (Tullock, 1959; Buchanan and Tullock, 1962), politicians once elected, in order to obtain a greater electoral support, try to use their influence to redirect resources to particular groups of constituents to the detriment of the general community. The fact that holding political power makes such a difference is the reason that democratic governments are founded on the principle that voters should ultimately decide which representatives are chosen to wield power[22] (Pande, 2003).

[21] The political power is defined as an authority held by a group within a society that allows for the administration of public resources and implements policies for the society. Distribution of power is in balance when each decision is made by the group of individuals (politicians and citizens) affected by the consequences of the decision per se. Acemoglu (2002) shows that inefficient institutions and policies are chosen because they serve the interests of politicians or social groups that hold political power at the expense of the rest. Related to this argument, Acemoglu and Robinson (2000b, 2002) explain why rulers who fear replacement may pursue the wrong policies for the society. In that paper, rulers who fear replacement are more likely to resist the introduction of superior technologies or institutions when these changes may erode their incumbency advantage and their potential future political power.

[22] Further, since long tenure in public office leads to abuse of power, legislators in many democracies are subject to a term limit.

The major risk in a democracy is that elected officials will become entrenched or that running for office may simply become too expensive for fresh-candidates. By the nature of the democratic system, being incumbent is intrinsically advantageous since he/she is given access to resources and decision processes that non-incumbent challengers do not have. If elected officials are able to use their political influence to remain in power, voters will have a limited influence on their policy decisions (Linden, 2004), especially where incentives to engage in rent extraction usually run high (Titiunik, 2011). Moreover, stronger incumbents also raise the cost of entering politics and reduce the degree of political competition because new challengers might not have enough resources to overcome the advantage of incumbency and as a consequence, voters might be less inclined to participate at the polls.

For this reason, a large literature has investigated the effect of the incumbency status on the probability that an incumbent candidate wins the electoral competition both at the state (Garand, 1991; King, 1990; Cox and Morgenstern, 1993) and federal level (Erikson, 1971; Alford and Hibbing, 1981; Alford and Brady, 1988; Gelman and King, 1990) in U.S. House elections. Results generally show a *personal* incumbency advantage, defined as the votes gained by a candidate once he/she becomes an incumbent from constituency service, name recognition, and the like, in terms of winning the electoral competition.

Moreover, some authors have focused on the incumbency effect at national and state elections in developing democracies, since the likelihood to observe both entrenched politicians controlling the political process as well as rampant corruption is higher (Linden, 2004). However, the evidence from some developing

countries, such as India (Linden, 2004; Uppal, 2009), Latin America and Caribbean countries (Molina, 2001)[23], suggests that there is a disadvantage to incumbents. The only exception is Miguel and Zaidi's (2003) investigation of national elections in Ghana in which they find no significant incumbency effect at the parliamentary seat level[24].

Furthermore, related to this argument, a second strand of literature, following Lee (2008)'s work, has concentrated on the *partisan* incumbency effect, i.e. the electoral benefit a candidate receives purely because his/her party is the incumbent party, regardless of whether he/she previously served (Fowler and Hall, 2012), highlighting again mixed results. In fact, Ferreira and Gyourko (2009) and Hainmueller and Kern (2008) find that the partisan incumbency status positively affects the probability of re-election and the likelihood of winning the competition in the US and in German districts at federal elections respectively. Conversely, Titiunik (2011), by using the same methodology as Lee (2008), analyses the incumbency effect for three different political parties at Brazilian municipal elections held in 2000 and finds a negative effect of the partisan incumbency both on the incumbent parties' votes share as well as on their probability of winning the competition.

[23] Molina (2001) argues that incumbent turnover is much higher in Latin American and Caribbean countries than many industrialized countries owing to endemic popular discontent over persistent deprivation. Conversely, for Indian national elections the incumbency disadvantage, especially after 1991, is essentially due to a change in the political structure that leads to a system in which as politicians gained more experience and influence they become more likely to pursue activities that are not in the best interest of voters (Linden, 2004).

[24] Miguel and Zaidi (2003) justify their results saying that the lack of a meaningful incumbency advantage is consistent with a political system where the ruling party does not have adequate mechanisms at its disposal to accurately target funds down to the level of parliamentary seats. However, they acknowledge some important limitations of their data set, including the small sample size which leads to statistically imprecise estimates.

In this paper I provide new evidence of the incumbency effect on a candidate's electoral prospects, using a large data set on Italian municipal elections held from 1993 to 2011. Although many papers have focused on state and federal elections, maybe because politicians and voters attach a greater degree of importance and weight to national than to local elections arguing that local elections rarely make much difference in political life (Koryakov and Sisk, 2003) I study the *personal* incumbency advantage at municipal elections since they have certain distinct characteristics as compared with national elections which give them considerable significance in political life. First, local elections are important for their role in a broader national democracy, since their results are indicative of broader political trends and provide important information about the preferences, concerns and attitudes of the electorate. Second, issues in local elections are those that directly affect the daily lives of citizens: the nature of the competition between candidates and the issues that arise can be important indicators of what voters care deeply about and want the local authorities to tackle.

As far as the methodology implemented to recover the causal incumbency effect is concerned, the main difficulty in empirically estimating incumbency advantage/disadvantage is omitted variable bias, since some candidate's characteristics such as charisma, charm and intelligence are typically unobservable and unquantifiable (Levitt, 1994). If higher quality candidates attract more votes, electoral selection will lead to incumbents and challengers possessing different characteristics. Failure to control for these differences may lead to biased estimates of incumbency advantage (Gelman and King, 1990). In order to overcome the problem of selection bias and omitted variable bias, I implement a regression

discontinuity design (RDD). I focus on very close elections which are decided by a narrow margin of victory. The bare winners and bare losers of these elections are assumed to be comparable in all their baseline characteristics (I discuss this assumption in Sub-Section 2.3.1). This implies that bare losers provide a valid counterfactual for bare winners with regard to subsequent electoral outcomes. By comparing these outcomes I identify the causal effect of the incumbency status.

The contribution of my paper is twofold. Firstly, the literature investigating the incumbency advantage/disadvantage for European countries is scant, and in particular, no author so far has analyzed whether incumbent mayors have or do not have an advantage in winning the competition compared to non-incumbent candidates for Italian municipal elections. In fact, decisions made at municipal level in Italy have a great impact on citizens' daily lives, since these decisions often concern relevant services, such as the management of public utilities, the provision of public housing etc. For this reason, citizens are usually interested in the composition of the Municipal bodies and in the performance of the mayor, especially when he/she has already performed the same charge in the past. In particular, my Sharp Regression Discontinuity estimates show that the *personal* incumbency effect, after controlling both for candidates and municipalities' characteristics as well as for partisanship and partisan incumbency, is about 33.5 percentage points, implying that incumbents (bare winners) are more likely to win the competition compared to their challengers (bare losers). Similar results are found when I use as dependent variable the vote share at time *t* (the *personal* incumbency effect is roughly 17 percentage points)[25], after controlling for

[25] Results not displayed, but available upon request.

municipalities and candidates' characteristics. Moreover, my findings are in line with those found in the literature (see for instance Alford and Brady, 1988; Gelman and King, 1990), although the methodology used in the previous papers does not take into account potential omitted variable bias. However, the effect I find is larger in terms of magnitude, maybe because I focus my analysis on local elections where the incumbency status explains most of the variation in the probability of winning the electoral competition compared to federal or national elections. To the best of my knowledge, the only authors using the Regression Discontinuity Design to find the causal effect of the *personal* incumbency status on the probability of winning the electoral competition are Uppal (2009) who finds an incumbency disadvantage of 22 percentage points over the probability of winning at time *t* after 1991 at Indian state elections, and Trounstine (2011) who highlights an incumbency advantage of 32 percentage points at city council elections between 1915 and 1985 in fmy U.S. cities.[26]

Secondly, I study the personal incumbency effect by taking into account the differences in the economic and social conditions of the two main geographical areas (South and North) in Italy. On the one hand, as the southern part of the country is poorer and endowed with a low level of social capital, the positive impact of the incumbency status on both the votes share as well as on the probability of winning the election may be related to the clientelistic relationships established by the incumbent candidates, which ensure political support in exchange of benefits (exchange votes). Areas endowed with low social capital are characterized by

[26] As recognised by the author, these fmy cities (Austin, Dallas, San Antonio and San Jose) are not a representative sample of U.S. cities. Therefore, the conclusion of this paper may be limited by the sample used. Moreover, she does not have enough observations to separately analyze mayoral elections.

relationships that often involve requests for jobs and patronage, and citizens living in these areas may be more inclined to cast their vote in relation to exchange agreements (Knack, 2002). On the other hand, in areas characterized by general discontent as the South of Italy, incumbents may have some difficulties in satisfying the majority of voters and as a consequence, the probability of winning the electoral competition for incumbent candidates is expected to be lower than that of incumbents holding power in the North. My findings are in line with these explanations since bare winners are 41.6 percentage points more likely to win the competition compared to bare losers in the North, whereas for southern municipalities I find an incumbent advantage of 26.3 percentage points.

Finally, my results are robust to different specifications of my main equation. In particular, my findings are similar when I consider only observations in narrow neighborhoods around the discontinuity point (5 and 2 percent above and below the threshold of margin of victory of zero respectively), and when I choose different polynomials of the forcing variable (Local Linear Regression) along with the interaction terms between polynomials of the electoral margin (until the third-order) and the treatment.

The chapter is organized as follows. Section 2.2 is devoted to the methodology implemented. In Section 2.3 I describe the institutional framework, my data set and I check the validity of the RDD. In Section 2.4, I discuss my main results estimates, whereas in Section 2.5 I present some robustness checks. Section 2.6 concludes.

2.2 Previous Measures of Incumbency Advantage and Methodology

2.2.1 How to Measure the Personal Incumbency Advantage

Erikson (1971) is the first author who studies the incumbency advantage systematically. He compares the vote share of an individual politician running for the second time with the politician's vote share in the first successful election, by taking into account reciprocal causation, the partisanship and other factors affecting the incumbency status. However, he uses a "regression on residuals" procedure that is quite biased in general (see King, 1986).

An alternative measure is proposed by Garand and Gross (1984) who use the difference in the vote margin between incumbent winners and non-incumbent winners. Nevertheless, as suggested by Jacobson (1987) and Alford and Brady (1988), the estimates are seriously affected by selection bias because of the complete exclusion of incumbent losers. In fact, they overestimate the incumbency advantage since their measure attributes party strength in a district to the incumbency (Gelman and King, 1990).

A second strand of literature uses the "sophomore surge" and "retirement slump" to estimate the incumbency effect. The sophomore surge is the average vote gain enjoyed by freshman candidates running as incumbents for the first time and the retirement slump is the average falloff in the party's vote when the incumbent retires (Cover and Mayhew, 1977). In addition, Alford and Brady (1988) introduce a measure of the incumbency advantage, called "slurge" that is the average between the sophomore surge and the retirement slump. The intuition behind this measure is that, since sophomore surge underestimates - retirement slump overestimates - the incumbency effect, the average of the two might be a better estimate than the

two measures alone. However, the two effects cancel out only if the true incumbency advantage is zero, and it has been shown (Gelman and King, 1990) that "slurge" generally underestimates the incumbency advantage.

Finally, several variants of sophomore surge and retirement slump also exist. For instance, Payne (1981), calculating scores separately for the Democrats and Republicans and then averaging them, finds biased estimates if the incumbency advantage is the same for both parties. Alford and Hibbing (1981) compute sophomore surge and retirement slump for the second and third reelections instead of the first only, to provide useful information about electoral career paths. Nevertheless, this procedure is still biased for the same reasons as the standard sophomore surge and retirement slump measures are biased (Gelman and King, 1990).

All the previous research is plagued by problems of the identification of the incumbency causal effect. The main issue is that the incumbency effect, based on the differential outcomes of incumbents and non-incumbents, suffers from a selection bias problem, since only those candidates who are better in quality may win and become incumbents. As a result, incumbency status of a candidate is not randomly assigned and in turn, the effect that previous authors have attributed to incumbency might include the effect of intrinsic differences in candidate characteristics (Uppal, 2009).

In order to handle this kind of selection bias issue, I follow Uppal (2009) using a regression discontinuity design (RDD henceforth) that approximates a natural experiment and, under certain continuity conditions[27], achieves a random

[27] As shown by Lee and Lemieux (2009), only if all observable and unobservable covariates, except treatment, are distributed continuously around the threshold, I can assume to have valid

assignment of incumbency status (Lee, 2008). The peculiarity of the RDD comes from the fact that the treatment assignment mechanism is known (since the incumbency status is a deterministic function of the margin of victory at time *t-1*). Under weak smoothness assumptions (see Rubin, 1974; Hahn et al., 2000 for a rigorous discussion), the RDD allows me to estimate the average treatment effect (ATE) at the discontinuity of the covariate (margin of victory) that determines treatment assignment. Even under non-random selection into treatment, the RD design yields an unbiased estimate of the treatment effect. This is the case because the margin of victory is a function of observed vote shares. Observed vote shares in turn consist of a latent systematic component that incumbents can influence, but also a random component over which incumbents cannot exert control (Hainmueller and Kern, 2008). It can be proven that as long as the covariate that determines assignment to treatment includes such a random component with a continuous density, treatment status is randomized at the threshold (Lee, 2008). Therefore, at the threshold, all observed and unobserved covariates will be independent of treatment assignment.

It is important at least to briefly consider the conditions under which the assumption of local random assignment at the threshold could be wrong. Local random assignment critically hinges on the presence of the random component. This does not imply that each municipal race has to be decided by this random component; in most races the random component will not be decisive. The key idea is that as races become closer and closer, confounders cease to systematically affect treatment assignment. In the limit, i.e. at the threshold, treatment assignment should be independent of all confounding variables. The plausibility of this assumption is

counterfactual observations on either side. If observations just right from the required cutoff are systematically different from the ones just to the left, then identification fails.

a function of the degree to which candidates are able to sort around the threshold. For example, if candidates had perfect control over their observed vote shares or were able to perfectly predict them, they would never run if they knew that they would lose. Alternatively, they would just invest enough effort to get exactly one more vote than the strongest district opponent. Such behavior would violate my identifying assumption. However, given the randomness inherent in elections, such a scenario seems rather implausible (Matsusaka and Palda, 1999).

Finally, just as in a randomized experiment, treatment effects will not be confounded by omitted variables. This provides an important advantage over commonly used regression models which are by construction vulnerable to omitted variable bias.

2.2.2 Methodology

The ideal natural experiment for estimating the incumbency effect would require to observe both a candidate as an incumbent and a non-incumbent at the same point of time which, obviously, is not possible (Uppal, 2009). The minimum requirement to estimate the casual effect of the incumbency status on the probability of winning the electoral competition would be to have candidates randomly assigned as incumbents and non-incumbents. This is not likely to be true because incumbents usually win the competition thanks to some intrinsic characteristics that are not possessed by non-incumbents.

The main identification strategy in the RDD is that incumbency status changes discontinuously at the threshold of margin of victory of zero. Candidates who have a positive margin of victory become incumbents and those who have a negative margin of victory become non-incumbents. In particular, the RDD compares barely

winners, i.e. candidates who are just above this threshold with barely losers, i.e. candidates just below the threshold. The intuition is that such candidates are, on average, similar in all observable and unobservable characteristics, and differ only in their incumbency status, implying that the assignment of incumbency status is approximately random in the neighborhood of a margin of victory of zero[28].

In particular, the baseline model I want to estimate is as follows:

[1] $$Prob(win_{i,t}) = \alpha + \beta\ Personal\ Incumbency_{i,t} + \varepsilon_{i,t},$$

where $win_{i,t}$ is a dummy variable taking the value of 1 if candidate *i* wins the election at time *t* and zero otherwise; $Personal\ Incumbency_{i,t}$ is an indicator variable for the incumbency status of a candidate such that $Personal\ Incumbency_{i,t}$ equals one if the margin of victory at time *t-1* is larger than zero and zero if it is negative; $\varepsilon_{i,t}$ is the stochastic error term. In the ideal case when the assignment of incumbency status is random, β is the difference in the probability of winning between incumbents and non-incumbents, or the true incumbency effect:

[2] $$E[win_{i,t} |\ Personal\ Incumbency_{i,t} = 1] - E[win_{i,t} |\ Personal\ Incumbency_{i,t} = 0] = \beta.$$

However, the assignment of incumbency status is likely to be non-random because incumbents and non-incumbents may have some idiosyncratic differences, such as charisma, charm, intelligence, party organization or campaign resources. In

[28] Further, some chance factors, such as the weather conditions on the election day, that might affect the outcome of the election do not vary systematically between incumbents and non-incumbents.

this case, equation [2] includes a bias due to differences in candidates' intrinsic characteristics, i.e. $Bias_{i,t}$:

[3] $$E\left[win_{i,t} \middle| \, Personal\ Incumbency_{i,t} = 1\right] - E\left[win_{i,t} \middle| \, Personal\ Incumbency_{i,t} = 0\right] = \beta + Bias_{i,t}$$

Equations (3) can alternatively be written as follows:

[4] $$E\left[win_{i,t} \middle| Electoral\ Margin_{i,t-1} > 0\right] - E\left[win_{i,t} \middle| Electoral\ Margin_{i,t-1} < 0\right] = \beta + Bias_{i,t,}$$

where $Electoral\ Margin_{i,t-1}$ is the margin of victory of candidate *i* at time *t-1*. The RDD compares candidates at election *t-1* who are marginally above the threshold of margin of victory of zero with those who are marginally below the threshold:

[5] $$E\left[win_{i,t} \middle| 0 < Electoral\ Margin_{i,t-1} \leq \mu\right] - E\left[win_{i,t} \middle| -\mu < Electoral\ Margin_{i,t-1} < 0\right] = \beta + Bias^{*}{}_{i,t},$$

[6] $$Bias^{*}{}_{i,t} = E\left[\varepsilon_{i,t} \middle| 0 < Electoral\ Margin_{i,t-1} \leq \mu\right] - E\left[\varepsilon_{i,t} - \mu < Electoral\ Margin_{i,t-1} < 0\right],$$

where μ represents the closeness of the elections. As μ becomes smaller, $Bias^{*}{}_{i,t}$ goes to zero and β measures the casual incumbency effect:

[7] $$\lim_{\mu \to 0^{+}} E\left[win_{i,t} \middle| 0 < Electoral\ Margin_{i,t-1} \leq \mu\right] \; - \lim_{\mu \to 0^{-}} E\left[win_{i,t} \middle| -\mu < Electoral\ Margin_{i,t-1} < 0\right] = \beta.$$

The validity of the RDD about a random assignment of the incumbency status depends on the assumption that candidates around the threshold are similar. This implies that the identification strategy is valid, and that only incumbency status changes discontinuously as a function of the margin of victory and all other

characteristics vary smoothly[29]. The only assumption made here is that unobservable characteristics are continuous functions of the margin of victory at time *t-1*, which is a much weaker restriction on the stochastic error term and implies that $g(\varepsilon_{i,t} | \ Electoral\ Margin_{i,t-1})$, the conditional density function of $\varepsilon_{i,t}$, is continuous. The continuity of observable characteristics will be checked in the next section.

2.3 Institutional Framework and Data

The system currently regulating municipal elections in Italy has been introduced in 1993 (DL 25 March 1993, no. 81). It has established the direct election of the mayor and the adoption of the plurality rule, with some differences according to the size of the city. For municipalities with a population of fewer than 15,000 inhabitants, elections are held with single ballot and plurality rule: the winning candidate is awarded a majority premium of at least two-thirds of the seats in the council. For cities with a population above 15,000, elections are held using a dual ballot system (where the second ballot is held only if none of the candidates obtains an absolute majority of votes in the first ballot). Only the two leading candidates at the first round compete in the second ballot and the winning candidate is awarded a majority premium of at least 60 percent of the seats in the council.

Since 1993, mayors have been subject to a two-term limit, while members of the Executive Committee and of the Municipal Council, endowed with legislative power, can be re-elected indefinitely.

[29] The only assumption made is that unobservable characteristics are continuous functions of the forcing variable, i.e. the margin of victory.

Municipal elections in Italy are held every 5 years[30] and Municipal governments cannot choose the election schedule. In certain circumstances, the legislature may not survive until the end of its legislative term, e.g. because of a mayor's early resignation. In these cases, elections are held before the natural schedule, and, as a consequence, all subsequent elections will be held at different times from other municipalities that have completed the foreseen legislative term.

Municipalities have a registry of eligible voters, which is revised whenever there is an election and all citizens aged 18 or above on the election date are automatically registered to vote. Voting takes place in polling stations organized by the local authorities. Elections are organized according to a traditional paper ballot system.

My empirical analysis is based on a panel data set, provided by the Italian Ministry of the Internal Affairs. In order to focus on elections regulated by the same rules, I only consider municipalities with less than 15,000 inhabitants, in which elections are held with single ballot and plurality rule.[31] Moreover, I drop elections in which *Personal Incumbency* is zero for both candidates. This might be the case either when bare losers and bare winners are freshman candidates at time *t* (open seats) or when the election is characterized by a binding term limit for the mayor[32]. I end up with a sample composed by 8,484 candidate-level observations (I have a bare winner and a bare loser from each election) for 3,352 Italian municipalities over the period 1993-2011.

[30] With the exception of the years between 1993 and 1999, when the electoral mandate had a duration of 4 years.

[31] The results reported in this paper remain substantially unchanged if I include in my sample also municipalities voting under the dual ballot system (those with more than 15,000 inhabitants). Results are available upon request.

[32] According to the Italian law not all the incumbent mayors can run for election. Because of a term limit, mayors cannot spend more than two consecutive terms in office. Then, I define *Binding Term Limit* as a dummy variable equal to one if the term limit constraint is binding and equal to zero if the term limit is slack. In my analysis, since I am focusing on elections in which the mayor reruns in election *t*, the term limit is always slack.

For each municipal election I have information on the number of candidates who run for a mayor position at each election, on their gender, age, educational attainment, previous job, vote shares and party affiliation (Anagrafe degli Amministratori Locali, Ministero dell'Interno).[33] Using this information, I build my dependent variable *Win* that equals 1 if the candidate *i* wins the election at time *t* and zero otherwise, *Personal Incumbency* taking the value of 1 when among the first two best candidates running for election at time *t* there is the exiting mayor and zero otherwise. In other words, *Personal Incumbency* is equal to one if the margin of victory at time *t-1* is positive and zero otherwise. I define the margin of victory of a candidate in multicandidate races as follows: the winner's margin of victory is the difference between his or her vote share and the vote share of the second-place candidate (divided by the number of valid ballots). Similarly, the margin of victory of a loser is the difference between his or her vote share and the vote share of the winner. This construct allows the margin of victory to be positive for winning candidates and negative for losing candidates (on average it is equal to 0.0049). Moreover, I build a dummy *Partisan wing* which is equal to 1 if candidates running for a mayor position do not belong to a national political party (*Lista Civica)* and zero otherwise, and *Partisan Incumbency* which is equal to 1 if one of the parties competing at the electoral race at time *t* is an incumbent party and zero otherwise. From Table 1, I can notice that 52% of candidates running for election at time *t* have already been mayor in the previous legislature, 59% of candidates belong to a *Lista Civica* and 33% of parties competing at time *t* are incumbent.

[33] It is possible to obtain detailed data at an individual level at the following website: http://amministratori.interno.it

Table 2.1: Descriptive Statistics

Variables	Mean	Std. Dev.	Min	Max	Observations[34]
Win	0.4954	0.5000	0	1	8,484
Personal Incumbency	0.5223	0.4994	0	1	8,484
Partisan Incumbency	0.3393	0.4735	0	1	8,484
Partisan wing	0.5938	0.4911	0	1	8,484
Electoral Margin (%)	0.0049	0.1270	-0.25	0.25	8,484
Female Candidate	0.0929	0.2903	0	1	8,484
Candidates' Age	49.4578	9.8984	18	86	8,484
Candidates' Education	14.4789	3.4532	5	18	8,484
Δ Candidates' Age	0.0016	13.3641	-55	42	8,484
Δ Candidates' Education	0.1044	4.6202	-13	13	8,848
No. Candidates	2.5806	0.7897	1	8	8,484
Turnout	0.7809	0.0914	0.2162	0.9571	8,484
Population Size/1,000	3.6707	3.2476	0.042	14.996	8,484
Education of Population	7.0741	0.8393	4.4229	12.5668	8,484
Employment	0.3217	0.1510	0.1745	0.6392	8,484
Elderly People (>=65)	0.1974	0.0629	0.0434	0.5655	8,484

Source: Local Administrators Data set (1985-2011), Italian Ministry of Internal Affairs; Italian Census of Population (1991 and 2001).

Using the information on candidates' gender I have built a dummy variable *Female Candidate* taking the value of 1 for female candidates running for a mayor position and zero otherwise. The proportion of women, among the first two candidates, participating at the electoral competition is about 9% with a standard deviation of 0.29. Moreover, the average educational attainment of candidates (*Candidates' Education*) is quite high (14 years of education), highlighting how the majority of candidates has at least obtained a high-school diploma,[35] whereas the average age of the two best candidates running for a mayor position (*Candidates' Age*) is about 49. Furthermore, to take into account that heterogeneous candidates may split votes more than homogeneous ones, I built both Δ *Candidates' Age* (with a mean of 0.0016), as measured by the difference in age between the first two best candidates, as well as Δ *Candidates' Education* (with a mean of 0.1044), i.e. the

[34] The number of observations refers to the regression in which I add all my control variables, I restrict my analysis to elections held in municipalities with a population lower than 15,000 inhabitants by choosing a bandwidth of 25 percent above and below the threshold of margin of victory of zero.

[35] In Italy, it takes 13 years to attain a High-School Degree while 17-18 years are necessary to attain a College Degree. Moreover, the educational attainment of people with a PhD or a Master degree is always 18 years in my sample.

difference in years of schooling between the first and second best candidate running at the electoral race.

Furthermore, for each municipal election I have information on the number of voters and the number of people eligible to vote. I measure *Turnout* as the ratio between the number of voters and the number of eligible voters. As shown in Table 2.1, Italy is characterized by a quite high electoral turnout compared to many European countries and to US: the average turnout in the period 1993-2011 has been of 78%, with a standard deviation of 0.0914.

Finally, I use the 1991 and 2001 Italian Census of Population to obtain time varying information at municipal level regarding population size, the number of employed individuals, the proportion of elderly people and the educational attainment of the population[36]. The average population size of Italian municipalities is 3,67. The population's number of years of education is, on average, 7.07, the ratio between the number of employed individuals and the number of not elderly inhabitants is 32% and the proportion of people aged 65 or above is on average 19.74%.

2.3.1 Smoothness Conditions and Validity of the Sharp RDD

In this sub-section I check the validity of the Regression Discontinuity Design as a local randomized experiment. The general concern with my identification strategy is that some characteristics other than incumbency status vary discontinuously with respect to the margin of victory.

[36] I use the 1991 census for elections taking place from 1993 to 1997 and the 2001 census for elections taking place since 1998.

As shown by Lee and Lemieux (2010) if variation in the treatment near the threshold is approximately randomized, then it follows that all "baseline characteristics" – all those variables determined prior to the realization of the assignment variable – should have the same distribution just above and just below the cutoff. If there is a discontinuity in these baseline covariates, then at a minimum, the underlying identifying assumption of individuals' inability to precisely manipulate the assignment variable is unwarranted.

It is standard in the RD design to demonstrate that treatment and control groups are similar in their observed baseline covariates. It is similarly impossible to test whether unobserved characteristics are balanced in the experimental context, so the most favorable statement that can be made about the experiment is that the data "failed to reject" the assumption of randomization (Lee and Lemieux, 2010). In other words, since information about unobserved characteristics of candidates and municipalities is not available, the focus is on observed characteristics, such as the educational attainment of candidates, the age of candidates running for a mayor position, the proportion of female candidates, the partisanship, the voter turnout, the number of candidates competing for election, the population's level of education, the employment rate and the proportion of people aged 65 or above.

To check whether the assumptions of the RD are satisfied, I present a test of the continuity of the distribution of the covariates at the cut-point. The idea behind this kind of test is to regress a covariate on a third or fourth order polynomial of the forcing variable along with a dummy for the treatment status: a statistically insignificant coefficient for the treatment dummy is taken as evidence in favor of local random assignment (Caughey and Sekhon, 2011; Lee, 2008; Lee, Moretti and Butler, 2004).

Table 2.2: Incumbency Effect and Predetermined Characteristics

Variables	Coefficient on Incumbent		
	Bandwidth ±25 % (1)	Bandwidth ±5 % (2)	Bandwidth ±2 % (3)
Candidates' Education	0.174	0.321	0.537
	(0.191)	(0.467)	(0.798)
Candidates' Age	2.429***	2.881**	3.989*
	(0.513)	(1.212)	(2.165)
Female Candidates	-0.044 ***	-0.043	-0.078
	(0.016)	(0.034)	(0.051)
Partisan wing	0.021	-0.038	-0.097
	(0.023)	(0.049)	(0.069)
No. Candidates	0.003	0.043	0.004
	(0.030)	(0.039)	(0.016)
Turnout	0.002*	0.001	0.001
	(0.001)	(0.001)	(0.001)
Population's Education	0.007	-0.012	-0.001
	(0.007)	(0.008)	(0.005)
Employment	-0.001	-0.001	-0.001
	(0.001)	(0.002)	(0.001)
Elderly People	-0.001*	-0.001	-0.001
	(0.000)	(0.000)	(0.000)
N. of Observations	8,484	2,366	1,003
N. of Municipalities	3,352	1,855	477

Notes: The dependent variable is specified in each row. The regression regresses the dependent variable on the incumbency status. In each regression I control for, annual and municipal fixed effects and for a cubic polynomial of the assignment variable. Robust standard errors are in brackets, clustered at municipal level. The symbols ***, **, * indicate that coefficients are statistically significant, respectively, at the 1, 5, and 10 percent level.

In Table 2.2 I test whether the incumbency status is predictive of a larger set of municipal and candidates' characteristics, by choosing a bandwidth of 25, 5 and 2 percent above and below the margin of victory threshold respectively, and by controlling for a third-order polynomial of the forcing variable, and for municipal-time fixed effects. Moreover, standard errors are robust to heteroskedasticity and are clustered at the municipal level.

Overall, Table 2.2 shows that the incumbency status predicts some of the predetermined characteristics when I choose a bandwidth of 25 percent (column 1). However, the coefficient on my variable of interest becomes smaller and statistically insignificant (see columns 2 and 3) as I examine closer elections (the

margin of victory gets closer to zero).[37]Over 9 covariates, only the coefficient on *Candidates' Age* is statistically significant at 10 percent level. Since not all the predetermined characteristics are balanced I add them as control variables in the specifications of my model displayed in the next section.

As a last specification test of my design, I perform, in Figure 2.1, a McCrary test by running a kernel local linear regressions of the log of the density separately on both sides of the threshold (McCrary, 2008), by considering observations in a bandwidth of 5 percent close to the zero margin of victory. If there were any discontinuities in the neighborhood of the cutoff point, one might be concerned that incumbent candidates are able to manipulate the margin of victory at time *t-1*, or in other words if individuals have a great deal of control over the assignment variable and if there is a perceived benefit to a treatment, one would certainly expect individuals on one side of the threshold (incumbents) to be systematically different from those on the other side (challengers).

One leading class of explanations for manipulation of vote share by incumbent politicians focus on incumbent control over voter information and individual effort. Essentially, the perks of public office may allow incumbents to strategically manipulate voter information and individual effort in order to signal their desirability to voters (Besley, 2006; Ashworth, 2006; Serra & Moon, 1994). Moreover, in the pre-electoral stage, incumbents may have advantages in the mobilization of campaign funds and political endorsements through stronger political networks and the incentives of potential contributors to align themselves

[37] The same findings hold true when I implement a difference-in-means test for the predetermined characteristics mentioned above between bare winners and bare losers (results are available upon request).

with the expected winner (see Gordon & Landa, 2009). In this setting, I expect incumbent politicians to have a certain amount of influence on their vote share, but precise sorting would require extensive manipulation. For example, incumbents would not only need to know that the election will be close in advance, but that they are just short of winning and then be able to manipulate to vote into a win for them.

However, as Figure 2.1 depicts, the log-difference between the frequency to the right and to the left of the threshold is not statistically significant at conventional levels (it is equal to 0.222 with a standard deviation of 0.138), and in turn incumbent politicians do not have any control on the electoral margin at time *t-1*.

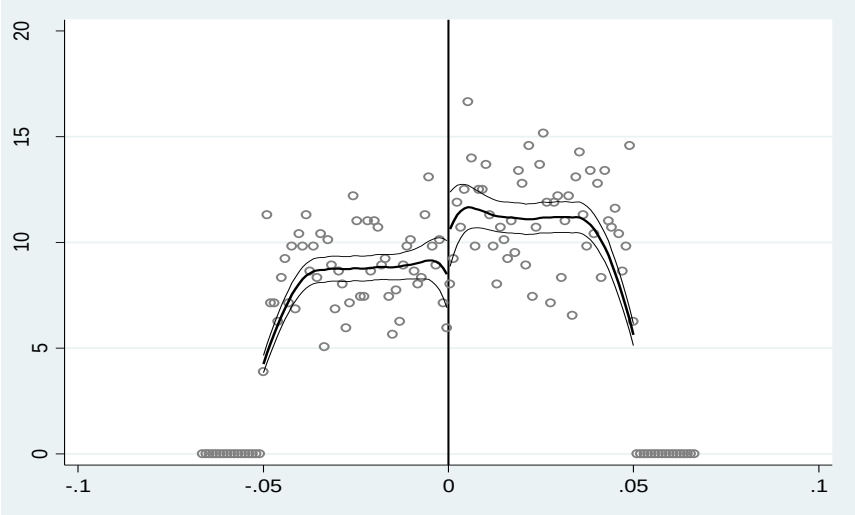

Figure 2.1: McCrary test – Manipulation Assignment Variable

2.4 Sharp RDD Estimates: Main Results

In this section, to understand whether an incumbent has a *personal* advantage compared to his/her challengers in terms of winning the electoral competition at time *t*, I implement a Sharp RDD and estimate a linear probability model with fixed effects at municipal level:

[1] $Pr(win_{i,j,t}) = \beta_0 + \beta_1 Personal\ Incumbency_{i,t} + \beta_2 X_{j,t} + \beta_3 Z_{i,t} + f(Electoral\ Margin)_{i,t-1} + +\varphi_j + \mu_t + \varepsilon_{i,j,t}$,

where $win_{i,j,t}$ is a dummy variable taking the value of 1 if the candidate *i* wins the electoral competition at time *t* in municipality *j* and zero otherwise; $Personal\ Incumbency_{i,t}$ is my main variable of interest measuring the incumbency status of candidates at the electoral race running for the mayor position in the municipality *j* at time *t*; $X_{j,t}$ is a vector including controls for municipal characteristics at the time of elections (population size, voter turnout, the average number of years of education of the inhabitants, the number of employed people over the number of not elderly inhabitants and the fraction of elderly people in the population) and electoral competition's characteristics (i.e. the number of candidates at the electoral race); $Z_{i,t}$ is a vector including controls for candidates' characteristics (the age of candidates, a dummy variable $Female\ Candidate_{i,t}$ taking the value of 1 for female candidates and zero otherwise, the educational attainment of candidates at the electoral race, the difference in age and educational attainment between the first two best candidates, candidates' party affiliation and a dummy variable $Partisan\ Incumbency_{i,t}$ that measures the incumbency status of candidates' parties at the electoral race) φ_j and μ_t are respectively a municipal and a year fixed effect. The municipal fixed effects φ_j accounts for time-invariant municipal characteristics, whereas μ_t is used to take into account any differences across time. $\varepsilon_{i,j,t}$ is the stochastic component in my model.

Moreover, *f(.)* is a polynomial function for the forcing variable, i.e. the degree of electoral competition at time *t-1*, as measured by the difference in votes (%) between the winner and his/her closest challenger. As stated by Lee and Lemieux (2010), trying more flexible specification of my model by adding polynomials in the forcing variable as regressors is an important and useful way of assessing the robustness of the RD estimates of the treatment effect.

In all regressions standard errors are robust to heteroskedasticity and are clustered at the municipal level to take into account the fact that candidates' behavior in the same municipality may be affected by common shocks. Further, in all the specifications I control for a third order polynomial of the electoral margin at time *t-1*[38], I choose a bandwidth of 25 percent above and below the threshold of margin of victory of zero and I focus on elections held with single ballot and plurality rule only.

Furthermore, in my analysis I focus on elections where there is an incumbent among candidates competing for a mayoral position. This might lead to a selection bias in my estimates since the rerunning decisions might differ systematically between incumbents and challengers, especially at local races. Some authors (see Uppal, 2009; Trounstine, 2011) have conditioned their incumbency estimates on candidates who rerun in election *t*, since the classical RDD would be to condition on re-running as this compares random losers of the previous election (challenger) with random winners (incumbents). Also this solution could give rise to a sample selection bias issue in the estimated incumbency effect if bare losers who rerun are systematically different from losers who do not rerun. Unfortunately, I cannot condition my estimates on candidates who rerun in election *t* since at Italian

[38] The inclusion of polynomials of order higher than three does not affect my main results.

municipal elections challengers are always different from election at time *t-1* to next election, and in turn I compare (potentially non-random) challengers with random incumbents. Moreover, conditional incumbency advantage/disadvantage has been strongly criticized by De Magalhaes (2014) because if $E(R_{1i} - R_{0i}) \neq 0$[39], then conditioning the RDD sample on rerunning implies that the control and treatment groups are no longer likely to be balanced and in turn, RDD is not valid to estimate the causal effect of incumbency conditional on rerunning. All in all my empirical findings must be interpreted with reference to the selected sub-population which data were sampled, i.e. elections where an incumbent decides to run.

RDD results are shown in Figure 2.2 (Panel a, b and c). In particular, I plot the estimated probability of winning the electoral competition at time *t* against the margin of victory at time *t-1*, close to the zero threshold, with a bandwidth of 25 percent above and below the cutoff, by using a nonparametric methods, i.e. I estimate a model that does not assume a functional form between my dependent variable and the forcing variable (Hahn et al., 2000). In Panel (a) I focus on elections in which an incumbent reruns for election in municipalities with a population size lower than 15,000, whereas in Panel (b) and (c) I show the incumbency advantage for southern and northern municipalities respectively again for elections held with single ballot and plurality rule.

The circles represent the raw probability of winning, while the connected points are the predicted values from a linear probability model of an indicator variable for victory at time *t* on the margin of victory at time *t-1*. As shown in Panel (a), there is a sharp discontinuous jump right at the zero cutoff. Barely winners are much

[39] Where R is a dichotomous variable taking the value 1 if the politician runs and zero otherwise.

more likely to succeed in the next election, compared to bare losers. The same findings are highlighted in Panel (b) and (c), although the effect of the incumbency on the probability of winning the electoral competition is larger in northern municipalities compared to southern municipalities. Overall, graphs highlight results displayed in the following tables (Table 2.3 and 2.4).

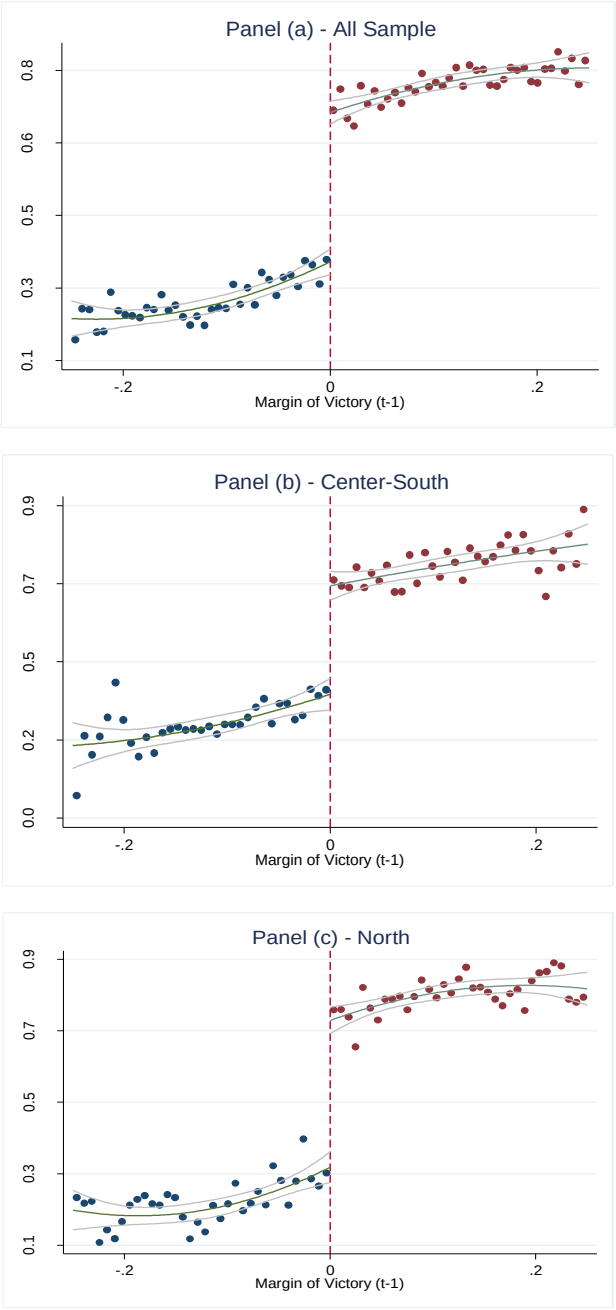

Figure 2.2: RDD Estimates – Incumbency Advantage

Table 2.3 presents the main results. In column (1) in which I control for year and municipal fixed effects as only, I find that the incumbent has an advantage in winning the electoral competition at time *t*: the *personal* incumbency effect is about 35.8 percentage points, implying that incumbents (bare winners) are more likely to win the competition compared to their challengers (bare losers).

Table 2.3: RDD Estimates – Personal Incumbency Advantage

	(1)	(2)	(3)	(4)
VARIABLES	Pr(win)	Pr(win)	Pr(win)	Pr(win)
Personal Incumbency	0.358***	0.335***	0.335***	0.335***
	(0.032)	(0.035)	(0.035)	(0.035)
Partisan Incumbency		0.038	0.038	0.038
		(0.024)	(0.024)	(0.024)
Partisan wing		0.028	0.028	0.028
		(0.019)	(0.019)	(0.019)
Candidates' Age		-0.004***	-0.004***	-0.004***
		(0.001)	(0.001)	(0.001)
Candidates' Education		0.004*	0.004*	0.004*
		(0.002)	(0.002)	(0.002)
Δ Candidates' Age		0.001	0.001	0.001
		(0.001)	(0.001)	(0.001)
Δ Candidates' Education		0.001	0.001	0.001
		(0.001)	(0.001)	(0.001)
Female Candidates		-0.119***	-0.119***	-0.119***
		(0.028)	(0.028)	(0.028)
Turnout			-0.125*	-0.127*
			(0.071)	(0.071)
Education Population			-0.005	-0.005
			(0.012)	(0.012)
Employment			0.037	0.036
			(0.075)	(0.075)
Elderly People			0.013	0.005
			(0.205)	(0.204)
Population Size/1,000			0.012	0.012
			(0.024)	(0.024)
Population Size^2			0.001	0.001
			(0.001)	(0.001)
No. Candidates				-0.003
				(0.004)
Constant	0.315***	0.469***	0.543***	0.555***
	(0.019)	(0.064)	(0.188)	(0.188)
Bandwidth	±25%	±25%	±25%	±25%
Electoral Margin Polynomial	Third	Third	Third	Third
Observations	8,484	8,484	8,484	8,484
R-squared	0.250	0.257	0.257	0.257
Number of Municipalities	3,352	3,352	3,352	3,352

Notes: The dependent variable is the probability of winning the election at time t. I control for municipalities fixed effects and for electoral year dummies (not reported) in all the regressions. I focus on municipalities with a population size lower than 15,000 inhabitants. Standard errors (corrected for heteroskedasticity and clusterized at the municipality level) are reported in parenthesis. The symbols ***,**,* indicate that coefficients are statistically significant respectively at the 1, 5, and 10 percent level.

In column (2) I add some candidates' characteristics as control variables. Again I find a positive and statistically significant incumbency effect on the probability of winning the electoral competition at time *t.* The same results hold true also when I control for municipalities' characteristics (column 3) and for the number of candidates running for a mayor position (column 4).

As far as my control variables (municipal and candidates' characteristics) are concerned, I find the expected results. Most of candidates' characteristics matter. In fact, having one female candidate running for the mayor position negatively affects the probability of winning the electoral competition, highlighting a sort of discrimination toward women since electors prefer male candidates compared to females. Further, having elderly candidates negatively affects my dependent variable, maybe because electors like younger candidates more. Conversely, having more educated candidates positively affects the probability of winning the electoral race.

Moreover, I do not find any *partisan* incumbency effect on the probability of winning the electoral competition: at Italian mayoral elections it does not matter if parties competing at the electoral race are incumbent or not. Finally, most of the municipalities' characteristics do not produce any statistically significant impact on my outcome variable.

All in all, the *personal* incumbency effect is always positive, statistically significant at 1 percent level and stable across specifications displayed in Table 2.3. This reassures me that adding further control variables does not dramatically affect the impact of my variable of interest on the probability of winning the competition at time *t*. In other words, results confirm the random assignment of the incumbency

status around the threshold of margin of victory of zero (Imbens and Lemieux, 2008)[40].

In Table 2.4 I replicate estimations presented in the previous table for municipalities located in the Center-South and in the North of Italy in order to take into account the fact that the incumbency advantage may be dissimilar in different parts of Italy. In particular, Italy is very heterogeneous in terms of economic and social condition, with the northern part being richer and endowed with higher social capital compared to the South. In columns (1) and (2) I run a regression for municipalities located in the South, whereas in columns (3) and (4) I focus on northern municipalities.

As highlighted in Table 2.4 in both areas the incumbent has a *personal* advantage in terms of winning the election at time *t*: the coefficient on my variable of interest is always statistically significant at 1 percent level and stable across the specifications, since it is not affected by the inclusion of the control variables, such as municipalities, candidates and electoral competition' characteristics.

However, the *personal* incumbency effect on the outcome variable is larger in terms of magnitude for northern municipalities compared to those located in the South. In particular, bare winners are 41.6 percentage points more likely to win the competition compared to bare losers in the North. On the other hand, for southern municipalities the incumbent advantage seems to be 26.3 percentage points.

This is due because the channels through which the incumbency status affects the outcome variable are different in municipalities located in the Center-South compared to those in the North of Italy. In fact, as highlighted by Stolfi et al.

[40] I also find a positive and statistically significant effect (at 1 percent level) of the incumbency status on the vote share (results are available upon request).

(2016)[41] in less economically developed regions there is a greater share of 'exchange' voters, i.e. electors who decide to go to the polls and cast votes exclusively because of personal benefits they receive once incumbents are re-elected (see for instance Bellucci, 1991). This point of view is supported by studies (see Chiaramonte and Di Virgilio, 2000; Fantozzi and De Luca, 2010) showing that higher prevalence of preference voting and greater voter mobility characterize poorer southern regions compared to richer regions located in the North of Italy.

Conversely, in rich areas clientelistic relationships are less frequent, and in turn citizens are more likely to punish bad performing incumbents by increasing support for challengers, or to reward well performing incumbents, leading in this case to an increase in the probability of winning the electoral race.

In column (5) in order to test if the heterogeneous effect of the incumbency status on the probability of winning the electoral race is statistically different from zero, I use the full sample and interact all covariates by the variable *South* that takes a value of 1 if the municipality is located in the Center-South and zero otherwise. The linear combination between the coefficient associated to *Personal Incumbent* and *Personal Incumbent*South* is statistically significant at 1 percent level, and in particular it is equal to 0.272 with a standard deviation of 0.05.

Another potential explanation supporting the idea that the incumbency advantage is different in terms of magnitude between Center-South and North, is that population plagued with high levels of poverty, deficient public services, and with its basic necessities unsatisfied lives in an area of "endemic discontent"

[41] Stolfi et al. (2016) find that in less developed areas In Italy voters are dependent on the income provided by incumbents compared to voters in richer areas, and in turn incumbents are better able to use clientelistic government spending for short-term electoral advantage in the former than in the latter.

(Molina, 2001) and as a consequence, it is difficult for the incumbent in the southern municipalities to satisfy the majority of voters and in turn, it is quite normal to expect that candidates in power will suffer a loss in terms of winning the electoral competition compared to candidates holding power in the North. Similar results are found by Molina (2001) for many Latin American and Caribbean countries.

Finally, in the last two columns of Table 2.4, to enforce the idea that the heterogeneous effect of *Personal Incumbency* on my outcome variable is essentially due to economic differences between Center-South and North of Italy, I split the sample based on regional gdp per capita in 2011 and run the same regression as that presented in the previous table. In particular, in column (6) I focus on municipalities belonging to regions with a gdp per capita lower than the median value, wheras in column (7) I look at municipalities located in regions with a gdp per capita above the median value. Results are similar to those presented in the first four columns of Table 2.4. In fact, in *low-gdp* municipalities incumbent politicians have an advantage in winning the electoral competition compared to challengers and in particular, the effect of my variable of interest is 24.9 percentage points on the outcome variable, while in *high-gdp* municipalities, *Personal Incumbency* has an effect of 41 percentage points on the probability of winning the electoral race.

Moreover, it may be that incumbency advantage is lower in the South, since in areas with high corruption and low social capital, frequent changes in mayors are the only way to exert democratic control. Further, I cannot exclude other channels, such as the electors' desire to punish incumbent politicians, who may have poorly performed in less developed areas, and to vote in favor of a new candidate. In fact,

in both cases I would expect a smaller incumbency advantage in areas endowed with lower social capital such as the South of Italy.

Table 2.4: RDD Estimates – Personal Incumbency Advantage South vs North

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	Pr(win) Center-South	Pr(win) Center-South	Pr(win) North	Pr(win) North	Pr(win) Full Sample	Pr(win) Low GDP	Pr(win) High GDP
Personal Incumbency	0.266***	0.263***	0.416***	0.416***	0.408***	0.249***	0.410***
	(0.051)	(0.051)	(0.048)	(0.048)	(0.048)	(0.055)	(0.045)
Personal Incumbency*South					-0.136*		
					(0.071)		
Partisan Incumbency	0.046	0.047	0.016	0.021	0.020	0.055	0.016
	(0.036)	(0.036)	(0.032)	(0.032)	(0.032)	(0.038)	(0.030)
Partisan wing	0.010	0.009	0.025	0.030	0.035	0.011	0.027
	(0.030)	(0.030)	(0.024)	(0.024)	(0.024)	(0.032)	(0.024)
Candidates' Age		-0.002*		-0.005***	-0.005***	-0.002	-0.004***
		(0.001)		(0.001)	(0.001)	(0.001)	(0.001)
Candidates' Education		0.003		0.004	0.004	0.004	0.003
		(0.004)		(0.003)	(0.003)	(0.004)	(0.003)
Δ Candidates' Age		0.001		-0.001	-0.001	0.001	-0.001
		(0.001)		(0.001)	(0.001)	(0.001)	(0.001)
Δ Candidates' Education		-0.001		0.001	0.001	-0.001	0.001
		(0.001)		(0.001)	(0.001)	(0.001)	(0.001)
Female Candidates		-0.123**		-0.117***	-0.116***	-0.121**	-0.119***
		(0.048)		(0.035)	(0.035)	(0.052)	(0.033)
Turnout		-0.176**		-0.007	-0.071	-0.161*	-0.033
		(0.084)		(0.135)	(0.121)	(0.093)	(0.114)
Education Population		-0.002		-0.023	-0.013	-0.005	-0.018
		(0.013)		(0.028)	(0.018)	(0.0142)	(0.022)
Employment		0.089		0.005	0.021	0.060	0.010
		(0.077)		(0.076)	(0.086)	(0.082)	(0.074)
Elderly People		-0.063		-0.003	-0.048	-0.059	-0.031
		(0.251)		(0.366)	(0.223)	(0.298)	(0.324)
Population Size/1,000		-0.010		0.042	0.0472	-0.031	0.043*
		(0.036)		(0.030)	(0.029)	(0.044)	(0.025)
Population Size^2		0.001		-0.001	-0.001	0.001	-0.001
		(0.001)		(0.001)	(0.001)	(0.002)	(0.001)
No. Candidates		-0.016**		0.004	0.006	-0.022**	0.004
		(0.007)		(0.004)	(0.004)	(0.009)	(0.004)
Constant	0.354***	0.625***	0.284***	0.511	0.579***	0.697***	0.507*
	(0.0277)	(0.216)	(0.028)	(0.341)	(0.203)	(0.245)	(0.273)
Bandwidth	±25%	±25%	±25%	±25%	±25%	±25%	±25%
Electoral Margin Polynomial	Third	Third	Third	Third	Third	Third	Third
Observations	4,080	4,080	4,584	4,584	8,484	3,526	5,138
R-squared	0.199	0.202	0.306	0.315	0.259	0.195	0.307
Number of Municipalities	1,582	1,582	1,840	1,840	3,352	1,372	2,050

Notes: The dependent variable is the probability of winning the election at time t. I control for municipalities fixed effects and for electoral year dummies (not reported) in all the regressions. Standard errors (corrected for heteroskedasticity and clusterized at the municipality level) are reported in parenthesis. The symbols ***,**,* indicate that coefficients are statistically significant respectively at the 1, 5, and 10 percent level.

2.5 *Robustness Checks*

In this section I check the robustness of my results. Firstly, I consider only data in narrow neighborhoods around the discontinuity point (Local Linear Regression). Secondly, by choosing a large bandwidth around the zero margin of victory threshold, I include interaction terms between $Personal\ Incumbency_{i,t}$ and different polynomials of the margin of victory in my regression.

In particular, as a first robustness check, I re-estimate my original model by narrowing the sample close to the treatment threshold and choosing a bandwidth of 5 and 2 percent respectively above and below the cutoff of margin of victory of zero. Table 2.5 reports the Sharp RDD results for the discontinuity samples.

In columns (1) and (2) of Table 2.5, in which I control for a third-order polynomial of the forcing variable, I focus on elections held with single ballot and plurality rule and I choose a bandwidth of 5 percent above and below the electoral margin threshold. I find that the *personal* incumbency effect on the probability of winning the electoral competition is positive and statistically significant at 1 percent level. Similar results are obtained in columns (3) and (4), where the window has been narrowed at 2 percent above and below the cutoff. All in all, the incumbency effect tends to be stable across the specifications. Moreover, in the last two columns I present results for southern municipalities (column 5) and northern municipalities (column 6). Again I find that in both areas bare winners have a *personal* advantage in winning the competition compared to bare losers, although the effect of my variable of interest is larger in the North.

Table 2.5: RDD Estimates – Personal Incumbency Advantage – Discontinuity Samples

VARIABLES	(1) Pr (win)	(2) Pr (win)	(3) Pr (win)	(4) Pr (win)	(5) South Pr (win)	(6) North Pr (win)
Personal Incumbency	0.404***	0.396***	0.350***	0.331***	0.262**	0.542***
	(0.079)	(0.079)	(0.129)	(0.127)	(0.116)	(0.106)
Controls	No	All	No	All	All	All
Bandwidth	±5%	±5%	±2%	±2%	±5%	±5%
Electoral Margin Polynomial	Third	Third	Third	Third	Third	Third
Observations	2,366	2,366	1,003	1,003	1,168	1,198
R-squared	0.149	0.157	0.158	0.188	0.113	0.224
Number of Municipalities	1,085	1,085	477	477	529	556

Notes: The dependent variable is the probability of winning the election at time t. I control for municipalities fixed effects and for electoral year dummies (not reported) in all the regressions. I focus on municipalities with a population size lower than 15,000 inhabitants and on elections characterized by a slack term limit for the mayor. Standard errors (corrected for heteroskedasticity and clusterized at the municipality level) are reported in parenthesis. The symbols ***,**,* indicate that coefficients are statistically significant respectively at the 1, 5, and 10 percent level.

As a second robustness check, I add interaction terms between my variable of interest and different polynomial functions of the assignment variable, i.e. the electoral margin, to check whether my model is well-specified, and whether the coefficient of $Personal\ Incumbency_{i,t}$ is stable in terms of sign and magnitude independently from the specification used. Further, I choose a bandwidth of 25 percent above and below the zero margin of victory threshold and I control for a third-order polynomial of the margin of victory and for municipal-time fixed effects in all the specifications. Table 2.6 shows the main results.

All in all, the coefficient on the *personal* incumbency status is always positive, statistically significant at 1 percent level and stable across the specifications[42]. Further, the magnitude of the effect is very similar to that found in Table 2.3 (column 4) and Table 2.4 (column 2 and 4) where I applied a Sharp RD design without interaction terms.

[42] The results are still similar when I interact the incumbency status with polynomials of the margin of victory of order higher than three.

Table 2.6: RDD Estimates – Personal Incumbency Advantage – Interaction Terms

VARIABLES	(1) Pr (win)	(2) Pr (win)	(3) South Pr (win)	(4) North Pr (win)
Personal Incumbency	0.356*** (0.045)	0.327*** (0.048)	0.208*** (0.074)	0.442*** (0.065)
Controls	No	All	All	All
Bandwidth	±25%	±25%	±25%	±25%
Electoral Margin Polynomial	Third	Third	Third	Third
Interaction Terms	Third	Third	Third	Third
Observations	8,664	8,664	4,080	4,584
R-squared	0.258	0.265	0.211	0.320
Number of Municipalities	3,422	3,422	1,582	1,840

Notes: The dependent variable is the probability of winning the election at time t. I control for municipalities fixed effects and for electoral year dummies (not reported) in all the regressions. I focus on municipalities with a population size lower than 15,000 inhabitants and on elections characterized by a slack term limit for the mayor. Standard errors (corrected for heteroskedasticity and clusterized at the municipality level) are reported in parenthesis. The symbols ***,**,* indicate that coefficients are statistically significant respectively at the 1, 5, and 10 percent level.

2.6 Concluding Remarks

One of the greatest concerns in a democracy is that elected officials might become entrenched or that running for office simply becomes too expensive for fresh-candidates. By the nature of the democratic system, being incumbent is intrinsically advantageous since he/she is given access to resources and decision processes that non-incumbent challengers do not have. If elected officials are able to use their political influence to remain in power, voters will have a limited influence on their policy decisions (Linden, 2004).

The general results in the literature have shown, on the one hand, a *personal* incumbency advantage both at the state (Garand, 1991; King, 1990; Cox and Morgenstern, 1993) and federal level (Erikson, 1971; Alford and Hibbing, 1981; Alford and Brady, 1988; Gelman and King, 1990) in U.S. House elections, since the incumbent candidate has a higher likelihood of winning the elections compared to his/her challengers, and on the other hand, an incumbency disadvantage for some

developing countries, such as India (Linden, 2004; Uppal, 2009), Latin America and Caribbean countries (Molina, 2001).

In this paper I have investigated the *personal* incumbency effect on the probability of winning the electoral competition at municipal level in Italy over the period 1993-2011. I have implemented a regression discontinuity design (RDD) and focused on very close elections which are decided by a narrow margin of victory, where the bare winners and bare losers of these elections are assumed to be comparable in their unobservable characteristics. In this way, by following Lee (2008), I have identified the causal effect of the incumbency status on my outcome variable.

My findings highlight a *personal* incumbency advantage since incumbents are 34.3 percentage points more likely to win the competition compared to their challengers. Moreover, results hold true also when I control both for candidates and municipalities' characteristics as well as for partisanship and *partisan* incumbency effect. Further, I also find similar results when I consider only data in narrow neighborhoods around the discontinuity point (Local Linear Regression) and when I include interaction terms between the treatment variable and different polynomials of the forcing variable, i.e. the margin of victory at time *t-1*.

Finally, I have analyzed the *personal* incumbency effect separately for municipalities located in the Center-South and in the North of Italy in order to take into account the fact that the incumbency advantage may be dissimilar in different parts of Italy, since the northern part is richer and endowed with higher social capital compared to the South. I have found that in both areas the incumbent has a *personal* advantage in terms of winning the election at time *t*, although the effect of

interest is larger in magnitude for northern municipalities compared to southern municipalities. One potential explanation is that when population plagued with high levels of poverty, deficient public services, and with its basic necessities unsatisfied lives in an area of "endemic discontent" (Molina, 2001), it will be hard for the incumbent in the southern municipalities to satisfy the majority of voters and as a consequence, candidates in power will suffer a loss in terms of winning the electoral competition compared to candidates holding power in the North.

CHAPTER 3

The Effect of Council Size on Municipal Expenditures: Evidence from Italian Municipalities

3.1 Introduction

A common issue in modern democracies is whether politicians allocate resources efficiently. A conspicuous body of literature has tried to understand how politicians make decisions, especially in terms of budget choices and how executive fragmentation (i.e. the number of spending legislators) affects governments' budgets (see Kontopoulos and Perotti, 1999; Persson and Tabellini, 2000; Baqir, 2001; Bradbury and Stephenson, 2003; Perotti and Kontpoulos, 2002; Per-Petterson-Lidbom, 2012; Besley and Case, 2003).

According to the fiscal common theory (Tullock, 1959; Buchanan and Tullock, 1962), politicians, in order to obtain a greater electoral support, try to satisfy the needs of particular groups of constituencies to the detriment of the general community. In fact, government spending typically benefits a narrow segment of the population, whereas taxes are distributed broadly. In line with this theoretical approach, Weingast, Shepsle and Johnsen (1981) propose a model in which the appropriation of government spending for localized projects (secured essentially to bring money to a representative's district - pork barrel -) plays an important role in explaining the relationship between legislature size and government size. They show that government spending increases with the number of legislative districts: since politicians try to benefit well-defined groups, such as voters in the electoral

district, at general community expense, pork barrel spending as well as other distributive policies will lead to an increase in total government spending. Each legislator (or district) internalizes all the benefits related to the implementation of a particular project but, on the other hand, he (it) only internalizes a fraction of the cost (taxes are spread across districts).

This result, often referred to "Law of 1/n", finds support in a number of empirical analyses showing a positive relationship between legislature size and government size. In particular, Gilligan and Matsusaka (2001) study the relationship between legislature size and government size by using data on States in the US in the first and second half of the 20th Century. They find that expenditures increase with the state upper chamber size, but they are not affected by the state lower chamber size. Del Rossi and Inman (1999) examine spending decisions for the American Congress and highlight how the support provided by legislators in order to finance public expenditures is negatively correlated to the specific cost borne by every single constituency. Bradbury and Crain (2001), using US data, find a positive relationship between legislature size and spending within the States considered, even though the effect tends to be stronger in unicameral legislatures. Bradbury and Stephenson (2003) empirically test "Law of 1/n" by using a sample of Georgia's counties. After controlling for many factors that may affect local expenditures, they find the number of county commissioners to be positively correlated to the county expenditures.

However, the idea according to which an increase in council size leads to an increase in government outflows has been criticized from both a theoretical and an empirical point of view. Primo and Snyder (2005) show that results found by Weingast et al. (1981) are not robust to alterations of the standard model. In

particular, they demonstrate that the positive relationship between spending and legislature size is based on several factors, such as the type of good being provided, the costs of raising revenues, whether the local government has to share in the project's cost with the central government etc. Once these factors are taken into account the relationship between total spending and legislature size might reverse and become instead negative (reverse law of 1/n).

Furthermore, the empirical analysis supporting the idea of a positive relationship between council size and government spending may not identify causal effects, for example, because of reverse causality problems (government size may affect legislature size: a large public sector might require a large number of individuals involved in the budget-decision-making process).

Recently some empirical studies have undertaken estimation strategies able to handle these problems. Nevertheless, results obtained are inconclusive. The mixed findings highlighted in the empirical literature might be due not only to different econometric techniques but also to certain country-level characteristics. In fact, as shown by Persson et al. (2007), the electoral rule affects government spending, but only indirectly: proportional elections induce a more fragmented party system and a larger incidence of coalition governments than do majoritarian elections. Moreover, the higher government spending in countries adopting a proportional system is financed to a greater extent with deficits (borrowing), than spending in other countries. Put differently, countries with proportional election rules tend to not only spend more than other countries, they also tend to borrow more to finance their spending.

With regard to the effect of council size on government spending at local level, Egger and Koethenbuerger (2010) and Hirota and Yunoue (2012), by considering

municipalities in the German state of Bavaria and in Japan respectively (where electors vote under a mixed electoral system), implement a Regression Discontinuity Design and find a positive relationship between public expenditures and legislature size. The same econometric strategy is adopted by Per-Petterson-Lidbom (2012), who instead finds a negative causal effect of legislature size on local government expenditures both for Finnish and Swedish municipalities (adopting a proportional system). Overall, Per-Petterson-Lidbom (2012)' findings stress how the heterogeneous effect of legislature size on government size found in different countries is not related to the adopted electoral system, since in Finnish and Sweden municipalities, that vote under a proportional rule, the larger the number of legislators the lower government expenditures are.

In this paper I present new evidence regarding the impact of council size on government spending using a rich data set on Italian municipal budgets over the period 2001-2007. To solve endogeneity problems, I rely on the exogenous variation in legislature size induced by the Italian law, establishing that Council size is a deterministic step function of population size. This law introduces a discontinuity in municipal Council size around some known thresholds of a continuous variable (population size), allowing me to implement a Sharp Regression Discontinuity Design to identify the casual effect of Council size on local government spending. Unfortunately, the number of legislators within the Municipal Council is not the only policy that changes around the population thresholds: also Mayors and Executive Committee members' wage varies discontinuously around the same thresholds that generate a discontinuity in the Council size.

Since the wage earned by Italian Mayors in each municipality is not observed I handle the mentioned issue by adding some more control variables that provide information on the quality and experience of elected politicians. I find a negative and statistically significant effect of Council size on total expenditures. If the Council size increases by 1 unit, the total municipal expenditures per capita decrease by 0.6 percent. Similar results emerge when I consider as dependent variables current expenditures per capita and capital expenditures per capita. One possible interpretation for these findings is that an increase in the number of Councilors leads to a better monitoring of bureaucrats in terms of spending, mitigating the agency problems and heightening the efficiency of the entire local public administration.

The chapter is structured as follows. In Section 3.2 I present the institutional framework and the data I use. Section 3.3 presents the methodology. In Section 3.4 the validity of the empirical methodology is tested. In section 3.5 the main results are presented. Section 3.6 presents some robustness checks, whereas Section 3.7 concludes.

3.2 Institutional Setting and Data Description

In Italy, municipal administrations are involved in a number of important functions such as the management of public utilities (local roads, water, sewage and garbage collection), the provision of public housing, transportation and nursery schools, and the assistance of elderly people. Since these services have a great impact on citizens' daily lives, voters are generally very interested in the composition and in the performance of Municipal Councils.

The main bodies within municipalities are the Executive Committee (Giunta Comunale) and the Municipal Council (Consiglio Municipale). The executive authority is assigned to a Mayor (Sindaco) heading an Executive Committee, while the Municipal Council is endowed with legislative power. The Municipal Council's main functions are to supervise (with majority rule) the legislative activity of the Mayor and to endorse policies, such as the Municipal Development Plan, the Plan of Public Works as well as the Budget.[43]

As shown in Table 3.1, the Italian law (Legislative Decree n. 267/2000) establishes that the Municipal Council is composed by the Mayor and by a variable number of Councilors, which depends on municipal population size.

Table 3.1: Council Size for Italian Municipalities- Legislative Decree no. 267/2000

Population Size	Council Size
Less than 3,000	12
3,000 ⊦10,000	16
10,000 ⊦30,000	20
30,000 ⊦100,000	30
100,000 ⊦250,000	40
250,000 ⊦500,000	46
500,000 ⊦1,000,000	50
Above 1,000,000	60

In Figure 3.1, I plot Council size against population size in the neighborhood of the first three thresholds (3,000; 10,000 and 30,000 inhabitants)[44]. The circles represent the raw council size, while the connected points are the predicted values from a linear model of the number of Councilors on municipality size. As Figure 3.1 depicts, Council size is a step (or *deterministic*) function of population size, and

[43] Since 1993, Mayors have been subject to a two-term limit (4 years each), while members of the Executive Committee and of the Municipal Council can be re-elected indefinitely.

[44] Roughly 6,324 municipalities in my sample have a population size lower than 30,000 that corresponds to 95 percent of observations in my sample.

in turn the methodology I can apply in order to recover the causal effect of interest is a Sharp Regression Discontinuity Design as described in the following sections.

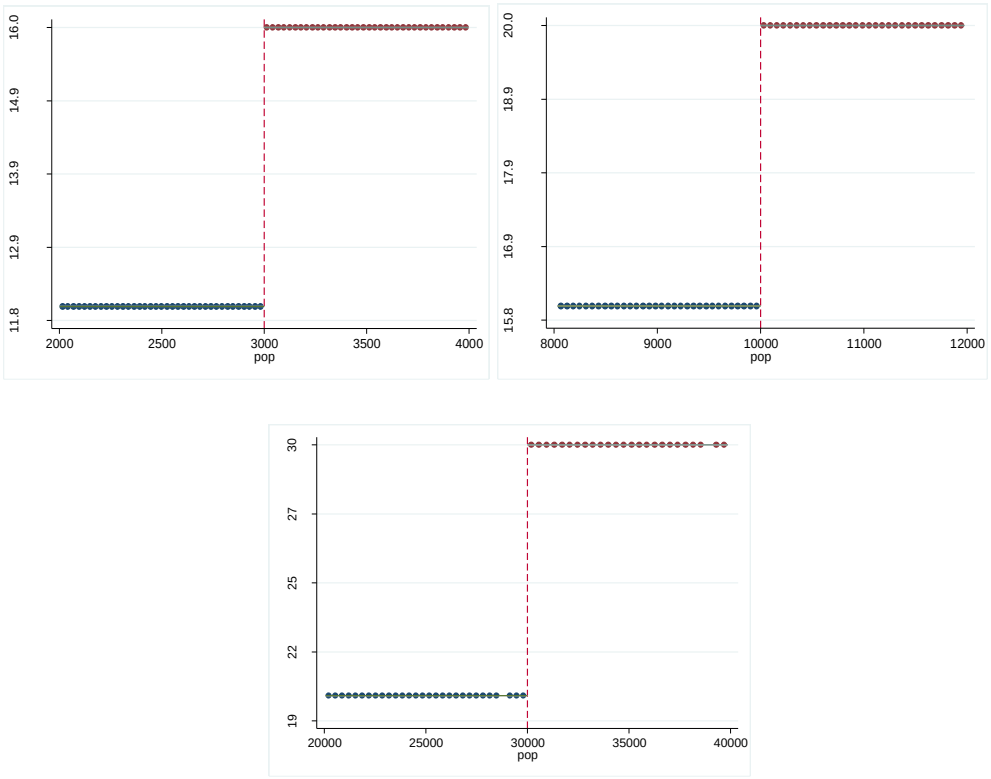

Figure 3.1: Discontinuity in Council Size

The Municipal Budget (Bilancio di Previsione) is the main instrument used to plan the economic and financial management of local governments in which all of the information on total inflows and outflows (Spese ed Entrate Totali) can be found. Total inflows are essentially divided into Current Inflows (Entrate Correnti), including Tax Revenues (Entrate Tributarie), Non-Tax Revenues (Entrate Extra-Tributarie) and Transfers (Entrate per Trasferimenti) and Capital Inflows (Entrate in Conto Capitale), including Transfers of Funds for Investment projects (Trasferimenti di Fondi per Investimenti) and Mortgages (Assunzione di Mutui e

Prestiti Obbligazionari). Current Inflows are usually used to finance Current Outflows (Spese Correnti), including expenses borne for a day-to-day municipalities' management, whereas Capital Outflows (Spese in Conto Capitale) are usually financed through Capital Inflows.

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My empirical analysis is based on a panel data set on municipalities' budgets, provided by the Italian Ministry of the Internal Affairs, of approximately 6,576 local governments, over the period 2001-2007. There is information on both Inflows and Outflows.

Moreover, I have information on the identity, gender, age, education attainment and previous jobs of the elected Mayors, the Executive Committee Members and

the Municipal Councilors as well as on the number of Assessors and Councilors within the main municipal bodies.[45]

To control for municipalities' demographic characteristics, I use the 2001 Italian Census of Population (Censimento della Popolazione Italiana). I observe the size of resident population, the average level of employment, the education attainment of the population, the proportion of people aged 65 or over and the size of each municipality area.

By merging these data sets, a sample of 42,381 observations for 7,070 Italian municipalities (from 2001 to 2007) has been obtained. Table 3.2 presents the descriptive statistics for the variables used in the empirical analysis.

Table 3.2: Descriptive Statistics

Variables	Mean	Std. Dev.	Min	Max
Total Expenditures per capita (ln)	6.70	0.46	1.16	11.26
Current Expenditures per capita (ln)	6.33	0.38	0.85	9.83
Capital Expenditures per capita (ln)	6.07	0.84	5.26	11.80
Council Size	14.73	4.40	12	60
Population Size	7,122.1	41,015.62	31	2,546,804
Employment	0.31	0.16	0.18	0.63
Education of Population	7.30	0.82	2.57	12.57
Municipal Area	37.14	50.07	1	1,499
Income	8,749.34	4,460.83	1,133.43	52,226.91
Elderly People (>=65)	0.20	0.07	0.04	0.64
Dual Ballot	0.22	0.41	0	1
Executive Committee Members' Age	42.77	4.04	27.25	62
Executive Committee Members' Education	12.27	1.7	5	18
Mayor's Age	47.98	9.03	21	64
Mayor's Education	14.24	3.56	5	18

Source: Local Administrators Data set (1985-2011), Italian Ministry of Internal Affairs; Italian Census of Population (2001).

The first three variables reported in Table 3.2 are used as dependent variables in my empirical analysis and give me information on the local government size, as measured by Total Expenditures per capita (with a mean of 6.70), Current

[45] Anagrafe degli amministratori Locali, Ministero dell'Interno http://amministratori.interno.it.

Expenditures per capita (with a mean of 6.33) and Capital Expenditures per capita (6.07 on average) in log terms.

As regards to the number of members within each Municipal Council, on average Councilors are 15 with a standard deviation of 4.40. The quite small average council size highlights the small-medium size of Italian municipalities (a mean of 7,122 inhabitants and average area size of 37.14 square kilometers).

The average years of education in the population are 7, the ratio between the number of employed individuals and the total number of not elderly inhabitants is about 31% and the share of population aged more than 65 is 20%. Finally, roughly 22% of municipalities in the sample have a population size above 15,000 inhabitants and in turn, elections in these cities are held using a dual ballot system.

As far as the Mayor and the Executive Committee members' characteristics are concerned, I consider variables that provide information about their quality and experience (education attainment and age)[46]. In particular, the average age among Executive Committee members is 43, whereas Mayors in the sample are 48 years old on average. Further, Mayors seem to be more educated than Executive Committee members: the average years of education of Mayors (14) are higher than those of Executive Committee members (13).

3.3 Methodology

In this section I discuss the methodology implemented for my empirical analysis. Since the number of Councilors within the municipal apparatus is a *deterministic*

[46] Similar measures of quality are used in De Paola and Scoppa (2011) and Baltrunaite et al. (2012).

function of a continuous variable, i.e. the population size, as highlighted by Figure 3.1, I can implement a Sharp Regression Discontinuity Design (RDD).

The idea behind the Sharp RDD is to compare municipalities just above the threshold to municipalities just below it: unobservable characteristics should not vary discontinuously around the cutoff and then the cutoff rule provides exogenous variations in the treatment "as good as a randomized experiment" (Lee, 2003).

There are different ways to implement a Sharp RDD. I could estimate the effect of Council size on government size at each of the 7 cutoffs established by the Italian law and obtaining in turn 7 different effects. However, this methodology would require a lot of data around the cutoffs. As a consequence, I use, as in Per Petterson-Lidbom (2012), a model allowing me to determine just one estimate for the effect of the Council size. More precisely, in my main analysis, I will use all the available data in the neighborhood of the first three thresholds using different bandwidths, i.e 35, 25 and 20 percent above and below the cutoffs, and estimate the following model:

[1] $$\log(Municipal\ Expenditures_{it}) = \beta_0 + \beta_1\ Council\ Size_{it} + g(pop_{it}) + X_{it} + \\ + \mu_p + \mu_t + Z_{it} + \varepsilon_{it},$$

where the dependent variable, $log(Municipal\ Expenditures_{it})$, is a measure of government size in logarithmic terms (i use three different measures of municipal expenditures: Total Expenditures per capita, Current Expenditures per capita and Capital Expenditures per capita), $Council\ Size_{it}$ is a linear function of the number of observed Councilors within the Municipal Council, and *g(.)* is a polynomial function for population size.

Moreover, I add X_{it} that is a vector of controls at the municipal level, including the area size in square kilometers of each municipality, the number of employed workers divided by not elderly inhabitants, the proportion of elderly people (i.e. people aged 65 or above), the average education attainment of resident citizens, measured in terms of years of schooling.[47] I also consider province and year dummies μ_p and μ_t respectively. ε_{it} is the error term of my model.

A potential issue related to the implementation of my methodology is related to the fact that in Italy, as stated by the Legislative Decree n. 267/2000, the number of legislators within the Municipal Council is not the only policy that changes around the population thresholds. Also Mayors and Executive Committee members' wage varies discontinuously around the same thresholds that generate a discontinuity in the Council size.

If there is another policy that depends on population size and shares the same population threshold, the effect of the Council size is confounded with the effect of this other policy and might not be identified. Paying higher salaries to politicians, according to the efficiency wage theory, may affects the way they manage public finance by increasing the incumbent's payoff from being reelected and by increasing the quality of elected officials (attracting more skilled individuals). An opposite prediction emerges from the model of Messner and Polborn (2004) and Matozzi and Merlo (2008) where an increase in the salary a politician receives while in office decreases the average quality of individuals who become politicians.

[47] I also control for income per capita in some specifications that I decided to not report in the paper, because I observe this variable over the period 2001-2006 only and consequently, I lose observations for the year 2007. However, the magnitude and the sign of the effect of Council size on local expenditures tend to be very similar.

Since the wage earned by Italian mayors in each municipality is not observed and in order to take into account the potential identification issue mentioned above, I add another control vector Z_{it}, that provides information on the quality and experience of elected politicians[48], such as the age and education attainment (measured by years of schooling) of mayors, as well as the average age and education level of the elected Executive Committee members for each municipality. These variables should capture any selection effects on observable characteristics, as shown by Ferraz and Finan (2011)[49].

3.4 Smoothness Condition and other Potential Confounds

The general concern with my identification strategy is the possibility that some other determinants of expenditures also exhibits a stepwise function or are discontinuous at the various cutoff points. The main assumption underlying my approach is that unobserved characteristics do not change discontinuously around population thresholds, i.e. the pre-determined characteristics of municipalities just above and below the thresholds are the same. Since information about unobserved characteristics of municipalities is not available, the focus is on observed

[48] This vector does not include information about partisanship of elected politicians and mayors since at the municipal level in Italy most of the parties (especially those in municipalities with a population size lower than 5,000 inhabitants) belong to *Liste Civiche*, i.e. they are not part either of left or right wing).

[49] Ferraz and Finan (2011) examine whether higher wages attract better quality politicians and improve political performance using exogenous variation in the salaries of local legislators across Brazil's municipal governments. The analysis exploits, like in my paper, discontinuities in wages across municipalities induced by a constitutional amendment defining caps on the salary of local legislatures according to municipal population. Since both the size of the legislature and the amount of block grant a municipality receives vary according to the population cutoffs, they take into account these potential confounds, by adding the amount of block grant and the legislature size as further control variables in their main specification.

characteristics, such as the average population's level of education, the employment rate, the municipal area and the proportion of people aged 65 or above. Figure 3.2 presents these municipal characteristics plotted against population close to the first three cutoff points.

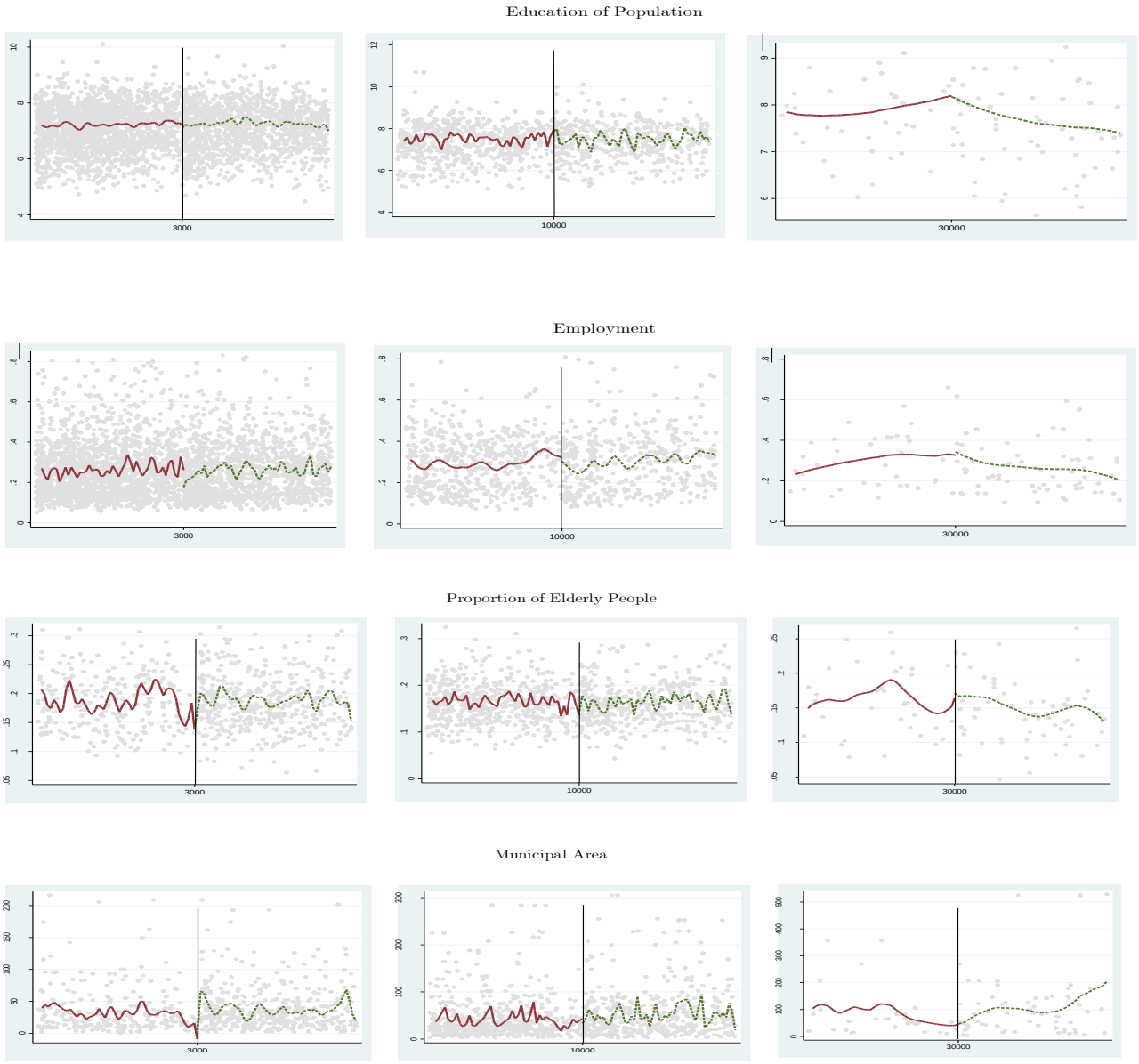

Figure 3.2: Discontinuity in the Pre-determined Characteristics

Each figure depicts population cell means of the municipal characteristic for the first three population thresholds (which represents 95 percent of the observations) along with the fitted values of a locally weighted regression calculated within each segment. The other cutoffs are excluded for presentational purposes. However, including these additional observations does not affect the results. In general, the figures show only small differences at each threshold points.

Table 3.3: Test for Difference-in-Mean

Window 1: ±35%						
	Threshold 3,000		Threshold 10,000		Threshold 30,000	
	Sample Size	Difference	Sample Size	Difference	Sample Size	Difference
Education Attainment	10,385	-0.003	5,788	-0.115***	1,891	-0.180***
Employment	10,021	0.005*	5,649	0.006	1,875	-0.014*
Area	10,385	-3.013***	5,788	-4.764***	1,891	-13.183***
Elderly People	10,385	0.006***	5,788	0.002*	1,891	0.005**
Window 2: ±25%						
	Threshold 3,000		Threshold 10,000		Threshold 30,000	
	Sample Size	Difference	Sample Size	Difference	Sample Size	Difference
Education Attainment	7,488	0.004	3,855	-0.122	1,249	-0.162***
Employment	7,223	0.012***	3,775	-0.001	1,233	-0.012
Area	7,488	-3.289***	3,855	-6.160***	1,249	-11.494**
Elderly People	7,488	0.001*	3,855	-0.002*	1,249	0.005**
Window 3: ±20%						
	Threshold 3,000		Threshold 10,000		Threshold 30,000	
	Sample Size	Difference	Sample Size	Difference	Sample Size	Difference
Education Attainment	5,845	0.020	2,979	-0.116	963	-0.158**
Employment	5,616	0.019**	2,914	-0.003	954	-0.028
Area	5,845	-2.098**	2,979	-6.677**	963	-10.023*
Elderly People	5,845	0.001	2,979	-0.006	963	0.002

Moreover, as a further specification test, I present in Table 3.3, a difference-in-mean test for the pre-determined characteristics mentioned above. In particular, I test whether there is a statistically significant difference in terms of municipal characteristics among municipalities just above and below the first three population thresholds, by considering the discontinuity samples with a bandwidth of 35, 25, and 20 percent above and below the thresholds respectively. In absence of manipulation, municipalities around the population thresholds should not differ significantly in terms of observable and unobservable variables.

As shown in Table 3.3, municipal characteristics are statistically different for the different groups of municipalities when I consider a bandwidth of 35 percent, but the significance of the difference in mean tends to disappear when municipalities in a smaller range around the thresholds are compared. This reassures me about the random assignment around the threshold points (Imbens and Lemieux, 2008). As not all of the variables are balanced and to avoid any bias due to the lack of balance I control for these variables in the regressions.

Another potential threat to my research design comes from the possibility that other government policies are discontinuous at the same cutoffs. Although I find no evidence that other characteristics of the municipalities change discontinuously at these cutoff points, the amount of grants transferred to Italian municipalities by State and Regions might vary according to the population size, as established by the Italian law (Legislative Decree n. 267/2000). In Table 3.4, I present the results of an OLS regression, in which I regress the capital and current transfers (per capita) received by central government and regions on the population cutoffs[50] and I control for municipal characteristics and for quadratic and cubic population

[50] I take into account only those cut-offs where the Council size varies discontinuously, based on the Italian law.

polynomials. Again I find that the amount of grants provided to municipalities does not change discontinuously around the population cutoffs used in my analysis.

Table 3.4: Discontinuity in State and Region Capital and Current Grants- OLS Results

	Capital Transfers (State and Regions)		Current Transfers (State and Regions)	
	(1)	(2)	(3)	(4)
Threshold_3,000	-23.882	-23.612	-143.201	-137.586
	(15.477)	(15.853)	(114.766)	(114.546)
Threshold_10,000	9.2028	10.059	8.664	26.536
	(10.004)	(11.144)	(72.975)	(72.662)
Threshold_30,000	20.710	22.909	120.185	165.916
	(14.734)	(17.997)	(108.743)	(114.521)
Threshold_100,000	55.369	57.942	446.248	499.338
	(34.050)	(38.678)	(330.610)	(349,741)
Threshold_250,000	82.465	74.468	556.395	588,607
	(70.709)	(55.968)	(399.134)	(380,201)
Threshold_500,000	129.691	48.630	1,245.027	-249,699
	(136.548)	(119.926)	(818.999)	(1,178,134)
Threshold_1,000,000	56.203	-9.837	679.114	-700,650
	(70.633)	(136.945)	(533.614)	(958.512)
Population Polynomial	Second	Third	Second	Third
Municipal Controls	Yes	Yes	Yes	Yes
Ex. Com and Mayors' Controls	Yes	Yes	Yes	Yes
Year and Province dummies	Yes	Yes	Yes	Yes
Observations	48,306	48,306	48,669	48,669
R-squared	0.007	0.007	0.018	0.018

Notes: The dependent variable is indicated on the top of each column. Standard errors, corrected for heteroskedasticity and adjusted for potential clustering at the municipal level, are reported in parenthesis. The symbols ***, **, * indicate that coefficients are statistically significant, respectively, at the 1, 5, and 10 percent level.

3.5 Empirical Results: Sharp RDD Estimates

In Table 3.5 I report the Sharp RDD estimates, in which local expenditures are measured by Total Expenditures per capita and Current Expenditures per capita in logarithms respectively.

In order to choose the correct specification of *g(.),* data has been analyzed and a linear or quadratic polynomial generally provides a good approximation.

In all the specifications, I control for municipalities' characteristics, Mayor and Executive Committee members' characteristics and year and province dummies. Standard errors are robust to heteroskedasticity and allowing for clustering at the municipality level to account for possible serial correlation in the errors within municipalities, as suggested by Bertrand et al. (2004).

In column (1) in which I focus on total expenditures per capita, using a bandwidth of 35 percent above and below the population thresholds and I consider a second order polynomial for population size, I find a negative and statistically significant effect of Council size on total expenditures. If the Council size increases by 1 unit, the total municipal expenditures decrease by 0.6 percent. Moreover, the magnitude and the sign of the Council size effect on total expenditures do not change dramatically in column (2) and (3) where I use a bandwidth of 25 and 20 percent around the cutoff points[51].

I can justify my findings in this way: an increase in the number of Councilors within the apparatus leads to a decrease in the municipal expenditures, since the local administration becomes more efficient. This is the case when, for example, a conflict between legislatures and bureaucrats rises about the level of expenses: bureaucrats usually tend to prefer higher level of expenses than politicians. The idea behind this agency problem is that elected legislators cannot make all policy decisions because of time constraints (it is sufficient to think that some members of Municipal Council can work in the private sector too) and consequently, they must

delegate some decisions to the administrative officials (see for example, Weingast and Moran,1983). The activity of monitoring and control of bureaucrats is costly and usually time-consuming. Thus, increasing the number of legislators may lead to a better control of the public administration and to an increase in its efficiency (Per Petterson-Libdom, 2011). Furthermore, legislators are the custodians of the "public purse", and they become more efficient at their task as the degree of specialization in the legislature increases (Crain et al., 1985).

In order to understand this agency conflict and consequently, how the efficiency of the local administration may be affected by the executive fragmentation, from column (4) to (6), I replicate the same specifications as those presented in columns (1) to (3), but I measure the local government size by expenses that are more directly under control of bureaucrats, i.e. Current Expenditures per capita (as mentioned before they refer to expenses borne for a day-to-day management of municipalities) including, among others, operating expenditures. It would have been interesting to investigate the effect of Council size on operating expenditures, but no detailed information on specific items that are part of current expenditures is available in my dataset. To the best of my knowledge, it is highly likely that bureaucrats have a higher decision-making authority on current expenditures than on capital expenses.

Also in this case, the results show that the effect of the legislature size on Current Expenditures per capita is negative and statistically significant at 5 percent level (see column (5)). The Current Expenditures per capita decrease by 0.4 percent in case of an increase in the Council size by 1 unit.

All in all, it can be concluded that the number of members within the Municipal Council is relevant to explain the variation in Current Expenditures per capita: an

increase in the number of Councilors leads to a better monitoring of bureaucrats in terms of spending, mitigating the agency problems and heightening the efficiency of the entire local public administration.

Table 3.5: Local Expenditures and Council Size- Sharp RDD

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	Tot Exp per capita (ln)	Tot Exp per capita (ln)	Tot Exp per capita (ln)	Current Exp per capita (ln)	Current Exp per capita (ln)	Current Exp per capita (ln)	Surplus (ln)
Council Size	-0.0064***	-0.0046**	-0.0048**	-0.0076***	-0.0044**	-0.0041**	0.0781***
	(0.0021)	(0.0024)	(0.0025)	(0.0017)	(0.0020)	(0.0020)	(0.0043)
Constant	5.665***	5.543***	5.709***	5.399***	5.219***	5.372***	4.433***
	(0.129)	(0.185)	(0.135)	(0.102)	(0.141)	(0.102)	(0.221)
Bandwidth	+/-35%	+/-25%	+/-20%	+/-35%	+/-25%	+/-20%	+/-20%
Population Polynomial	Second	Second	First	Second	Second	First	First
Municipal Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ex. Com. and Mayors' Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year and Province dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	16,377	11,312	8,760	16,377	11,312	8,760	8,759
R-squared	0.397	0.399	0.422	0.461	0.464	0.497	0.810

Notes: The dependent variable is indicated on the top of each column. Standard errors, corrected for heteroskedasticity and adjusted for potential clustering at the municipal level, are reported in parenthesis. The symbols ***, **, * indicate that coefficients are statistically significant, respectively, at the 1, 5, and 10 percent level.

To enforce the idea that a higher number of council members can improve the efficiency/productivity of the local public administration, in column (7) I explore the effect of Council size on the municipal budget surplus, as measured by the difference between total revenues minus total expenditures. Results actually show a positive and statistically significant effect at 1 percent level of my variable of interest on municipal budget surplus: if Council size increases by 1 unit municipal surplus increases by 7.8 percent roughly.

Furthermore, Table 3.6 focuses on the theory proposed by Weingast et al. (1981) in which pork barrel plays an important role in explaining the relationship of interest. Hence, legislators, following the logrolling and trying to obtain some

benefits in terms of re-election, tend to implement large investment projects granting an advantage to some specific groups of citizens to the detriment of the general community. In fact, under the logrolling hypothesis, Councilors can use in a wrong way municipal inflows to build private roads, to fix sewage systems or to open new recreation grounds at the request of a particular group of constituencies. For this reason, in order to test the prediction of Weingast et al. (1981) model on the oversupply of public projects, Capital Expenditures per capita has been used as a dependent variable for two main reasons: first, this variable is widely considered in the literature as a good proxy for the size of public projects; and second, expenses related to operations of maintenance and implementation of public works are included in Capital Expenditures.

Table 3.6: Pork Barrel Policies and Council Size- Sharp RDD Results

	(1)	(2)	(3)
VARIABLES	Capital Exp per capita (ln)	Capital Exp per capita (ln)	Capital Exp per capita (ln)
Council Size	-0.0170***	-0.0117***	-0.0110***
	(0.00270)	(0.00298)	(0.00312)
Constant	5.097***	4.834***	4.930***
	(0.134)	(0.170)	(0.161)
Bandwidth	+/-35%	+/-25%	+/-20%
Population Polynomial	Second	Second	First
Municipal Controls	Yes	Yes	Yes
Ex. Com. and Mayors' Controls	Yes	Yes	Yes
Year and Province dummies	Yes	Yes	Yes
Observations	16,377	11,312	8,760
R-squared	0.272	0.29	0.302

Notes: The dependent variable is indicated on the top of each column. Standard errors, corrected for heteroskedasticity and adjusted for potential clustering at the municipal level, are reported in parenthesis. The symbols ***, **, * indicate that coefficients are statistically significant, respectively, at the 1, 5, and 10 percent level.

As in the previous analysis, the coefficient of the Council size is negative and statistically significant at 1 percent level for the specification in column (1): an

increase by 1 unit in the legislature size leads to a decrease in the capital expenses by 1 percent. These results, suggesting that there is no pork barrel politics in Italian Municipalities, are in contrast with those predicted by the Weingast's model.

3.6 Robustness Checks

In this section I check the robustness of my results. Firstly, as a first robustness check, I re-estimate my original model by trimming the outcome variables at 1 percent from top and bottom of the distribution (1^{st} and 99^{th} percentiles). Secondly, I offer some additional evidence on the fact that my estimates are not affected by the change in the Mayor's wage varying at the same thresholds defining the Council size.

3.6.1 Regression with trimmed Outcome Variables

In Table 3.7 I present results coming from a Sharp RDD, in which the distribution of all of local expenditures measures (dependent variables) is trimmed, i.e where the top 1% and bottom 1% of local government size is set to missing. In particular, in column (1) government size is measured by total spending per capita, in column (2) by current expenditures, whereas in column (3) by capital expenditures. In all regressions I control for the full set of controls, for year and province dummies and for a first order polynomial of the forcing variable. Furthermore, the bandwidth chosen is 20 percent above and below the cutoffs.

Again results show that Council size has a negative and statistically significant (at conventional level) effect on all of measures of local government size. Findings are very similar both in terms of magnitude and significance when I impose "bottom codes" and "top codes" to provide a common calculation of lower and upper limits, i.e. a method often referred as "winsorising", where the top 1% and bottom 1% of

local government spending are set respectively to the value of the 1st and 99th percentile, when I use different bandwidth as well as when the top 5% and bottom 5% of local government spending is set to missing (results not presented but available upon request).

Table 3.7: Trimmed Outcome Variables and Council Size- Sharp RDD Results

	(1)	(2)	(3)
VARIABLES	Total Exp per capita (ln)	Current Exp per capita (ln)	Capital Exp per capita (ln)
Council Size	-0.005**	-0.003*	-0.011***
	(0.002)	(0.002)	(0.003)
Constant	5.710***	5.310***	4.933***
	(0.135)	(0.113)	(0.161)
Bandwidth	+/-20%	+/-20%	+/-20%
Population Polynomial	First	First	First
Municipal Controls	Yes	Yes	Yes
Ex. Com. and Mayors' Controls	Yes	Yes	Yes
Year and Province dummies	Yes	Yes	Yes
Observations	8,754	8,600	8,757
R-squared	0.427	0.503	0.302

Notes: The dependent variable is indicated on the top of each column. Standard errors, corrected for heteroskedasticity and adjusted for potential clustering at the municipal level, are reported in parenthesis. The symbols ***, **, * indicate that coefficients are statistically significant, respectively, at the 1, 5, and 10 percent level.

3.6.2 Exogenous Variation in the Council Size: Mayor's Wage Threat

As stated before, the Council size is not the only policy that varies discontinuously around the population thresholds. Also Mayors and Executive Committee members' wages change around the same cutoffs. To take into account this problem in previous estimates I have controlled for the experience and quality of elected Mayors and Executive Committee members.

Unfortunately there are no thresholds at which only the Council size varies. However there are some thresholds at which there is no change in the Council size but only a change in Mayor and Executive Committee members' wage. Hence, as a final robustness check, to enforce my idea that the impact of Council size on the municipal expenditures is not confounded with the effect produced by the Mayor and Executive Committee members' salary, I focus close to the only three population thresholds[52] that uniquely identify a wage increase, i.e. 1,000, 5,000 and 50,000. In particular, I use a Local Linear Regression (LRR) with a bandwidth of 20 percent above and below the thresholds, where I regress all the measures of the municipal expenditures on dummy variables taking a value equal to 1 if the observations are above the thresholds and 0 otherwise, and I control for municipality characteristics, Mayors and Executive Committee members' characteristics as well as for a first order population polynomial. However, since the LLR, as stated by Lee (2003), usually requires very large sample sizes around the thresholds, I decide to not consider the 50,000 threshold because of observations lack in the neighborhood of the cutoff. Table 3.8 presents the results.

I find that the coefficients on the cutoff indicators, that estimate the effect of the increase in wage at each threshold point, are not statistically significant for almost all the specifications[53]. I found just a significant effect of the increase in the wage on Capital Expenditures per capita around the 5,000 threshold. Moreover, the effect tends to be positive, so the higher the salary earned by Mayors and Executive Committee members, the larger the municipal expenditures. This gives support to

[52] I choose a bandwidth of 20 percent above and below the population cutoffs. The results are the same also when I choose a different bandwidth. Data is available upon request.
[53] The coefficient on the cutoff indicators is always statistically insignificant also when I choose different bandwidth around the population thresholds.

the idea that the negative effect on municipal expenditures is due uniquely to an increase in the number of legislators within the municipal Council.

Table 3.8: The Effect of Mayors Wage on Municipal Expenditures: LLR Results with a Bandwidth of ±20%

	Total Expenditures per capita (ln)	Current Expenditures per capita (ln)	Capital Expenditures per capita (ln)
	(1)	(2)	(3)
Threshold_1,000	-0.021	-0.027	0.064
	(0.023)	(0.019)	(0.057)
Threshold_5,000	-0.046	-0.014	0.238***
	(0.042)	(0.019)	(0.063)
Population Polynomial	First	First	First
Municipal Controls	Yes	Yes	Yes
Ex. Com and Mayors' Controls	Yes	Yes	Yes
Year and Province dummies	Yes	Yes	Yes
Observations	10,184	10,184	9,889
R-squared	0.460	0.495	0.216

Notes: The dependent variable is indicated on the top of each column. Standard errors, corrected for heteroskedasticity and adjusted for potential clustering at the municipal level, are reported in parenthesis. The symbols ***, **, * indicate that coefficients are statistically significant, respectively, at the 1, 5, and 10 percent level.

3.7 Concluding Remarks

A large body of literature has concentrated on how politicians make decisions, and how the number of legislators affects governments' budgets. The general results in the literature have shown a positive effect of legislature size on government size, although the source of variation used in the empirical works is likely to be endogenous (see Baqir, 2001; Bradbury and Crain, 2001; Bradbury and Stephenson, 2003; and Gilligan and Matsusaka; 1995, 2001. The only exceptions are the analysis of Egger and Koethenbuerger (2010), Hirota and Yunoue (2012) and Per-Petterson-Lidbom (2012), which find however mixed results. In this way, not only the theoretical model proposed by Weingast, Shepsle and Johnsen (1981), but also the

causal interpretation of results presented in the previous papers have been questioned.

In this paper I have empirically investigated the causal effect of legislature size on local expenditures for Italian municipalities over the period 2001-2007 using a Sharp Regression Discontinuity Design. I find a negative relationship between Council size and municipal expenditures, as measured by Total Expenditures per capita, i.e. increasing the number of members within the Council apparatus leads to a greater ability to control bureaucrats and consequently to a higher level of productivity in the public administration.

There are strong reasons to believe that these results are internally valid, i.e. Council size is causally correlated to municipal expenditures, since the source of variation used to identify the effect of the variable of interest is exogenous.

As robustness check, I test the Weingast et al. model (1981) on pork barrel policies, focusing on Capital Expenditures per capita. Again I highlight a negative and statistically significant effect of Council size on capital expenditures, used as a proxy for the size of projects implemented by legislators, showing that there is no pork barrel politics at the municipal level in Italy, and in turn, casting some doubts on the Weingast et al. model (1981). Furthermore, in order to reinforce the hypothesis that an agency problem in terms of spending could rise between legislators and bureaucrats, I have focused on expenditures that are more directly under control of bureaucrats, i.e. Current Expenditures per capita, showing again a negative effect of legislature size on government size at the municipal level in Italy.

Conclusions

In the first chapter of my thesis I empirically studied the effect produced by one of the intrinsic characteristics of candidates running for a mayor position, i.e. the incumbency status, on electoral turnout at the municipal level in Italy over the period 1993-2011.

In the literature it has been shown that having a rich set of information on candidates' characteristics reduces the cost anchored to casting the vote and in turn, it boosts the probability that voters go to the polls (Dawson and Zinser, 1976; Chapman and Palda, 1983).

Being informed is important to make the right decision, especially in electoral contexts characterized by low levels of information where electors rely on heusistics to choose who vote among a long list of candidates: a candidate will be favored compared to others only if the voter feels well represented.

This is the reason why some candidates' characteristics, such as the gender (McDermott, 1997), the race (Sigelman et al., 1995), the sexual orientation (Golebiowska, 2001; Herrick and Thomas, 1999) and the employment (McDermott, 2005), have been investigated in the literature as determinants of voter turnout.

The focus of the first chapter is on the incumbent officeholder, as a potential variable explaining the variation in the electoral participation. My empirical findings show a positive but not statistically significant effect, when I control for the "closeness" of the electoral race, of the incumbency status on my outcome variable. However, the impact of incumbency is heterogeneous across geographical areas (South vs North). In particular, I highlight how the incumbency does not affect turnout in northern municipalities, but it produces a positive and statistically

significant effect in the South: this is essentially due to the fact that the southern part of Italy, compared to the North, is characterized by low levels of social capital and by clientelistic relationships established by incumbent politicians. The same results hold true also when I look separately at municipalities in the lower and upper quartile of the social capital distribution, as measured by blood donation, and at municipalities characterized by high or low density of organized crime.

In the second chapter I studied the *personal* incumbency effect on the probability of winning the electoral competition at the municipal level in Italy over the period 1993-2011. In a democracy, incumbents usually get some advantages that non-incumbent challengers do not have and if they use their political influence to remain in power, voters will have a limited influence on their policy decisions (Linden, 2004).

My findings show a *personal* incumbency advantage since incumbents are more likely to win the competition compared to their challengers. Furthermore, when I focus on municipalities located in the South and in the North of Italy in order to take into account, as I said before, the dissimilarity in the level of social capital and income between these two geographical areas, I find that in both areas the incumbent has a *personal* advantage in terms of winning the election, although the effect of interest is larger in magnitude for northern municipalities compared to southern municipalities. One potential explanation is that when population plagued with high levels of poverty, deficient public services, and with its basic necessities unsatisfied lives in an area of "endemic discontent" (Molina, 2001), it will be hard for the incumbent in the southern municipalities to satisfy the majority of voters

and as a consequence, candidates in power will suffer a loss in terms of winning the electoral competition compared to candidates holding power in the North.

Finally, in the third chapter I investigated the effect of legislature size on local government spending in Italy over the period 2001-2007. Results show a negative relationship between the variable of interest and municipal expenditures. This means that by increasing the number of legislators the level of productivity in the public administration increases, since legislators are able to control bureacrats' activity easily.

Moreover, in order to reinforce the hypothesis that an agency problem in terms of spending could rise between legislators and bureaucrats, I have focused on expenditures that are more directly under control of bureaucrats, i.e. Current Expenditures per capita, showing again a negative effect of legislature size on government size at the municipal level in Italy.

Also, the "Law of 1/n" theory on pork barrel policies has been tested, finding a negative and statistically significant effect of legislature size on capital expenditures, showing that there is no pork barrel politics at the municipal level in Italy.

Overall, the policy implications of my thesis are twofold. First, chapter 1 and 2 highlight the importance of using term limits in modern democracies also at the local level in Italy. In fact, in many representative democracies, many elected officials can obtain too much power or authority over time, making their representation of the citizens less representative. Term limits prevents politicians misbehavior, ensuring that no one can focus more on keeping a job and a certain level of power, than representing the public. This way, decisions will be made more

carefully, because if a public official knows that he will only have the opportunity to hold a particular job for a certain number of years, even if re-elected, he will not be as likely to consider public service as a career. Moreover, politicians have developed over the course of time, a reputation for being corrupt and unconcerned with their constituents. The common thread with most politicians that have become more corrupt seems to be the length of time most of them have served. Usually, it seems that corruption seems to happen as time goes on in the career of a politician. Term limits seem to make this less likely because there is less time that a politician can be influenced by the power of the office that they hold.

This scenario clearly emerged from my research. In fact, I find that incumbent politicians not only build relationship based on the log-rolling in the poorest areas of Italy, having the chance to divert public resources and to use "red-tape procedures" and private information in order to obtain exchange votes, but also have an advantage in winning the electoral race compared to their challengers.

With this regard, my future research aims at investigating the direct effect of term limit on electoral participation at the local level in Italy. Term limits might affect voter turnout through different channels. First, they may increase voter participation by making elections more competitive and dynamic. Second, they may increase voter confusion and disinterest by introducing a greater number of unknown non-incumbents into electoral contests, leading to lower turnout. Third, particularly at the time of the introduction of the institutional change, media coverage of local elections may increase significantly, decreasing the costs of acquiring relevant information for voting.

In particular, the Italian law that came into force in 2013 introduced a three-term limit for mayors in municipalities with a population size lower than 3,000 inhabitants. This allows me to have a treatment group (municipalities affected by the reform with a population size lower than 3,000) and a control group (municipalities not affected by the reform with a population size larger than 3,000). I will use a Difference-in-discontinuity design, by combining the before/after with the discontinuous policy variation at the 3,000 population size cutoff. Finding a statistically significant effect between treatment and control group would cast some doubts on the exogeneity of the instrument used in the first chapter of my thesis.

The second implication of my thesis, coming from the third chapter, is that a higher number of legislators leads to an improvement of the efficiency/productivity of the public administration, essentially due to a better control of bureacrats, and mitigates in turn, the conflict of interest between politicians and administrative officials.

Future research on this topic suggests to investigate if the relationship between legislature size and government spending is non-monotonic (U-shape relationship). In fact, it may be the case that when legislature size is small, then an increase in the number of legislators leads to a better monitoring of bureaucrats in terms of spending, heightening the efficiency of the entire public administration. Conversely, the efficiency of the local administration might tend to reduce if legislature size is big enough to guarantee a good management of the "public pursue". Unfortunately, Italian data does not allow to investigate this kind of relationship since legislature size is a step function of population size. Hence, I need

to focus on a different country, and to adopt the correct methodology to recover the causal effect of interest, so that my results will have an external validity.

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